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AN EVALUATION OF THE EFFECTS OF AN ENRICHMENT PROGRAM ON SIX YEAR OLD CHILDREN.

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THIS STUDY WAS AN EXPERIMENTAL INVESTIGATION OF THE EFFECTS OF AN ENRICHMENT PROGRAM ON A SELECTED GROUP OF FIRST GRADERS. ITS PURPOSE WAS TO DETERMINE WHETHER CHILDREN EXPERIENCING THE EXPERIMENTAL CONDITIONS SHOWED GREATER GROWTH IN INTELLIGENCE AND ACHIEVEMENT AND GREATER USE OF FUNCTIONAL LANGUAGE THAN A CONTROL GROUP AT THE END OF ONE SCHOOL YEAR. AN ADDITIONAL OBJECTIVE WAS THE ANALYSIS OF ORAL LANGUAGE WITH REFERENCE TO STRUCTURAL PATTERN, VOCABULARY, AND FLUENCY. THE SUBJECTS WERE 141 FIRST GRADERS IN TWO PHILADELPHIA SCHOOLS, BOTH OF WHICH WERE LOCATED IN LOW SOCIOECONOMIC AREAS. ONE-HALF OF THE CHILDREN RECEIVED A SUPPLEMENTARY ENRICHMENT PROGRAM AND THE REMAINDER, AT ANOTHER SCHOOL, SERVED AS A CONTROL. THE INDEPENDENT VARIABLE WAS THE MULTISENSORY COMPENSATORY EDUCATION PROGRAM TO FACILITATE GROWTH IN CONCEPT DEVELOPMENT ADMINISTERED 2 HOURS WEEKLY TO THE EXPERIMENTAL GROUP AS A SUPPLEMENT TO CLASSROOM INSTRUCTION. THE AUTHOR CONCLUDED THAT THE COMPENSATORY EDUCATION TREATMENT (1) DID NOT PRODUCE GREATER GROWTH IN INTELLIGENCE, WORD KNOWLEDGE SKILLS, OR WORD DISCRIMINATION SKILLS, (2) DID NOT AFFECT USE OF FUNCTIONAL LANGUAGE, AND (3) DID NOT PRODUCE A SIGNIFICANT DIFFERENCE IN ARITHMETIC SKILLS. IN ADDITION, IT WAS CONCLUDED THAT READING ABILITY WAS SIGNIFICANTLY AFFECTED BY MENTAL ABILITY, TREATMENT, AND THE INTERACTION OF THESE TWO VARIABLES. (AL)

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Cooperative Research Project No. S-316

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CHAPTER I

THE PROBLEM

For the past six years the mass media, as well as the academic press, have been replete with words such as, "slum," "blighted," and "culturally deprived." For purposes of literary convenience it has been suggested (Fusco, 1964) that "deprived," "disadvantaged," and "underprivileged" be used interchangably, while Ponder (1965) prefers to call the disaffected, "experience poor" and "culturally different."

McKendall (1965) points out that the term "disadvantaged" is a self-conscious and all purpose phrase, referring to a variety of social and economic factors. Although Harrington (1963) asserts that the majority of the poor in America are white, it is the non-white minorities who suffer the most intense and concentrated impoverishment of any single group. Kaplan (1963) cites the term "culturally deprived" to encompass two characteristics: (1) those in lower socio-economic groups, and (2) those deficient in cultural and academic strengths--

the latter usually a consequence of the first factor. The parents of culturally deprived children have been unable to provide the quality of background that is a matter of course in upper and middle class environments.

Regardless of the term used, tangible evidence for these concerns can be seen in the many projects begun since 1960, when the term "culturally deprived" first appeared in The Education Index. It is suggested here that cultural deprivation has become somewhat of a slogan in the sense that Komisar and McClellan (1961) discuss. They suggest that a standard interpretation is one of the criteria of a successful slogan. Slogans contain prescriptive elements; and implicit in them are goads to action. Investigations into current literature lead the writer to conclude that the above mentioned terms are successful slogans that have led educators, psychologists, and sociologists to prescribe for the alleviation of the conditions the terms have come to connote.

Need for the Study

Records from the Digest of Educational Statistics indicate that in 1964, 3,847,000 children entered urban public first grades. Riessman (1962) reports alarming figures on the increase of the disadvantaged of this group in our fourteen largest cities. According to his findings, one out of every three children in the 1960's belongs to this category. Within the past few years, the public school systems of Buffalo, Detroit, Milwaukee, Philadelphia, and the District of Columbia have all instituted compensatory education programs in the elementary school under the aegis of the Great Cities Program for School Improvement supported by the federal government.

Ausubel states:

> A curriculum that takes the readiness of the culturally deprived child into account always takes as its starting point his existing knowledge and sophistication in the various subject matter areas no matter how far down the scale this happens to be. (1963, p. 455)

Deutsch (1960, p. 27), who has been working with disadvantaged children at the New York Medical College speaks about the concepts that have been developed from experiences with "majority group children" and the need to modify techniques. To close this gap, specific deficits must be delineated in order to offer effective stimulation. Deutsch and Brown (1964, p. 26) believe that "deprivational influences have a great effect on later developmental stages" and exhort the need for early intervention to overcome a "cumulative deficit."

Stressing the importance of linguistic areas, Kirk (1965) recommends the term "language deprivation." Since the acquisition of communication skills is a prime aim of education, Cutts (1962) speaks to the necessity for revamping curriculum and intensifying efforts to compensate for language deficiencies. Hunt supports these purposes in his prescription for amelioration of experiential deficits:

> Counteracting cultural deprivation at this stage of development might best be accomplished by giving the child the opportunity to encounter a wide variety of objects, pictures, and appropriate behavior models and by giving him social approval for appropriate behavior. The setting should encourage him to indulge his inclinations to scrutinize and manipulate new objects as long as he is interested and should provide him with appropriate answers to his questions. Such varied experiences would foster the development of representative imagery which could then be the referents for spoken words and then for written language. (1964, p. 89)

The renewed interest in the "didactic materials" of Montessori (Standing, 1962) as a means of involving muscles and tactile senses as well as recent attention to the experimental psychology of Hebb (1949) are also evidences of the concern for the value of early stimulation and its effect on the organism.

It was with these problems in mind that the Philadelphia Board of Education instituted the Learning Centers Project for kindergarten and first grade children at the T. M. Peirce Elementary School in September, 1964. In providing multi-sensory enrichment as a supplement to classroom teaching, it was hypothesized that growth would occur in measured intelligence, academic skills, and oral language development. With the realization that language is basic to learning, this area became a major focus of the program.

A review of the research and literature indicated that while much has been prescribed and is being carried on in the field of compensatory education, no experimental study has been conducted to evaluate a supplementary multisensory approach to learning employed concurrently with regular classroom instruction. Furthermore, of the compensatory education programs reviewed, the investigator has found none to use nationally and locally normed tests plus informal tests in order to gauge the effects of a program in a more finite sense. Most research of this nature utilizes standardized achievement and/or intelligence tests for purposes of evaluation, while the research of a descriptive nature of the oral language of first grade children and of the syntactic structure of their speech is sparse.

Purpose of the Study

The purpose of this study was to determine the effects of the T. M. Peirce program. The present investigation was conducted with the following objectives in view:

1. To determine the effect of an enrichment program on measured intelligence, academic skills, and oral language development.
2. To study oral language development with special reference to pattern, fluency, and vocabulary.

Answers were sought to the following questions:

1. Will first grade children experiencing experimental conditions as described in this study, show greater growth in intelligence and academic achievement as compared with the control group at the end of one school year period?
2. Will children experiencing the experimental conditions show greater growth in functional language than the control group over the period of one school year?

It was with these questions in mind that this study was undertaken and the following null hypotheses proposed:

1. Hypothesis H1: Experimental and control groups will not differ with respect to growth in intelligence.

2. Hypothesis H2: Experimental and control groups will not differ with respect to word knowledge skills.

3. Hypothesis H3: Experimental and control groups will not differ with respect to word discrimination skills.

4. Hypothesis H4a: Experimental and control groups will not differ with respect to reading achievement as measured by the Metropolitan Achievement Test.

5. Hypothesis H4b: Experimental and control groups will not differ with respect to reading achievement as measured by the Philadelphia Reading Test.

6. Hypothesis H5a: Experimental and control groups will not differ with respect to arithmetic achievement as measured by the Metropolitan Achievement Test.

7. Hypothesis H5b: Experimental and control groups will not differ with respect to arithmetic achievement as measured by the Philadelphia Test in Arithmetic.

8. Hypothesis H6: Experimental and control groups will not differ in their use of functional language.

A seventh area of investigation was undertaken in an attempt to collect some normative data on the syntactic structure employed by both experimental and control groups. In addition to the study of the particular language patterns the subjects used, vocabulary and fluency were also studied.

Method of the Study

The procedures for investigating the problem are listed below:

1. A review of related research and literature was made.

2. Hypotheses were developed which related to the findings of previous studies.

3. Instruments were selected to collect the data. The Kuhlmann-Anderson Intelligence Test was selected as a measure of intelligence. The Metropolitan Achievement Test was used to gauge achievement in the areas of language and arithmetic. The Philadelphia Reading Test and the Philadelphia Test in Arithmetic were also used for the latter purpose. The Dailey Language Facility Test was employed in order to assess functional language. A category system for delineating language patterns was devised. Measures of vocabulary and fluency of speech were developed.

4. 141 first graders representing two schools in the Philadelphia Educational Improvement Program were selected as subjects for the study. One half of the children received a supplementary enrichment program. One half at another school served as a control. At the beginning and end of one school year, intelligence and achievement tests were

administered to both groups. In addition a test of language facility was given to all subjects at the end of the year. Protocols from the tests were utilized for further language analysis.

5. Analysis of the data was made in the light of hypotheses proposed, using appropriate statistical procedures.

6. Conclusions and recommendations were formulated based upon the findings of the study.

Limitations of the Study

Listed below are several limitations of the study:

1. The size of the groups was smaller than anticipated due to mobility of subjects. The original sample included ninety subjects in each group comprising a total sample size of one hundred eighty subjects.

2. Group size was also affected by the necessity of matching groups according to mental ability.

3. The other criterion used in an attempt to equate groups was socio-economic status. The selection of a control group was based on the independent judgments of two principals and two curriculum advisors of the School District of Philadelphia. No strict sociological indices were employed however.

4. Within the limits of the study, it was not possible to consider the variable of the teacher experience. All teachers had taught at least one year however.

5. Although all but two children in the study were Negro, racial differences in teachers were not considered.

6. Although this study was undertaken to gauge the effects of compensatory education upon a culturally deprived sample, this term, as indicated formerly, has wide meaning. The findings, therefore, must be generalized with utmost caution to other urban populations.

Definitions and Explanations of Terms

Terms used in this study which may require clarification for readers are listed below.

1. Culturally Deprived: Groups who reside in areas of high mobility, in multidwelling houses, whose achievement is low by national standards, and whose use of functional language is restricted. This definition was arrived at through a survey of the literature as well as through a pilot study conducted by the investigator in which four areas of a metropolitan city were studied using linguistic and sociological criteria. The terms "culturally deprived" and "disadvantaged" are used interchangeably in this study.

2. Enrichment: Refers to a multi-sensory program in the development of concepts in language, mathematics, and science administered to the experimental group as a supplement to regular first grade teaching in the Learning Centers Program at the T. M. Peirce Elementary School, Philadelphia.

3. Philadelphia Educational Improvement Program: An attempt to provide special resources, both human and material, to schools whose children are low achieving.

4. Compensatory Education: Programs designed to make up for deficiencies in experiential backgrounds of learners that might mitigate against school achievement. Intervention programs are used in this same context.

5. Intelligence: That which is measured by the Kuhlmann-Anderson Intelligence Test, to be referred to hereafter as I.Q. score.

6. Academic Achievement: Scores on standardized tests in academic skill areas, specifically the Metropolitan Achievement Tests, the Philadelphia Reading Test, and the Philadelphia Test in Arithmetic.

7. Mental Ability: That which was measured by the Philadelphia Verbal Ability Test prior to first grade placement and used as a basis for grouping.

Terms Used in the Specific Study of Language

1. Language Facility: Adeptness in language as measured on the Dailey Language Facility Test--ranging from one word to a creative story. The term functional language ability refers to the same criterion.

2. Language Patterns: Indicating syntactic structure used in speech taken from the protocols of the Dailey Language Facility Test. While language facility is based on prescriptive criteria, language patterns are descriptive of oral language.

3. Vocabulary: Components of oral language protocols of the Dailey Language Facility Test analyzed and quantified.

4. Fluency: A quantitative analysis of the output of protocols of oral language from the Dailey Language Facility Test elicited in an adult-child testing situation.

5. Kernel Sentences: Basic structural patterns from which all other sentences can be derived. (e.g., noun/verb. John runs.)

6. Transformations: Grammatical operations that produce more complex structures of language, changing kernels to passive constructions, questions, negative constructions, etc. (e.g., simple sentence: The man drove the car; transformation: The car was driven by the man.)

7. Envelope Form: A quotation within a sentence. (e.g., He said, "It is red.")

8. Multiple Run-On: Three or more phrases connected by the terms "and" or "so" or both.

Summary

The present study was conducted to determine the effects of a compensatory education program on first graders of varied intelligence. Subjects for the study were groups of first graders in six classrooms divided evenly in two schools. One half of the classrooms received multi-sensory enrichment two hours weekly as a supplement to classroom instruction.

All subjects were pre-tested before the program began and post-tested at the end of one school year on measures of intelligence and achievement. In addition, all subjects were administered a test of language facility at the end of one school year. The independent variable of the study was the enrichment program plus the use of additional personnel in the experimental situation. The dependent variables were measures of growth in scores of intelligence and achievement tests as well as measures in language areas. The results from the data were used to determine whether or not there were differences in measured intelligence, academic skills, and oral language in the subjects who received compensatory education.

Chapter II reviews the related research and literature which is pertinent to the present study. Chapter III describes procedures utilized. Chapter IV presents the findings. Chapter V contains conclusions, implications, and recommendations for further research and development.

CHAPTER II

REVIEW OF RESEARCH AND RELATED LITERATURE

In the bulk of writing about the disadvantaged, this group has been described largely by enumerating those factors which are lacking. Writings are descriptive rather than experimental in nature. Within the last few years, however, formal intervention programs have been initiated as a means of either alleviating or preventing the conditions that keep children from performing well on tests of intelligence and achievement. Researchers are attempting to report these procedures in detail as well as to describe the nature of the population in an effort to plan more successfully for the education of culturally deprived groups. Scholars from several disciplines have begun to pool resources in combating the problems which confront such a large portion of our urban population.

This chapter will focus on the research and literature relating to these concerns and will be classified under the following headings:

1. Descriptions of compensatory education programs emphasizing language areas.
2. Studies relating to the findings of the effects of compensatory education on I.Q. scores.
3. Studies and descriptions of the oral language of children of varied socio-economic levels.
4. Studies and descriptions of oral language in culturally deprived settings.

Descriptions of Compensatory Education Programs Emphasizing Language Areas

Since the inception of the T. M. Peirce Project in September 1964, numerous compensatory education programs have begun. The foci of these projects are varied in nature (e.g., attempts at remediation, community involvement, counselling, etc.). The summary provided here will deal only with programs that have some similarity to the one under direct study. Since progress reports and not findings are available on these projects, conclusions will not be drawn but rather the purposes of the projects described.

In his discussion of sensory stimulation, Bruner (1961) uses the term "non-specific transfer of training" in citing the need for varied stimuli in helping children to learn strategies for coping with commonalities of their environment. From Bruner's writing as well as from the work of Piaget (1950) in his description of learning operations, much emphasis is now being placed on the young child. Silberman (1964) describes efforts in Israel that begin with parental training in the child's preschool years. Mass federally supported pre-kindergartens in the United States include Projects Head-Start and Get-Set. Britain, Canada, and the Soviet Union also have programs which deal with the culturally different.

An attempt at using a sensory approach for enrichment is that of Deutsch (1963) at the Institute for Developmental Studies in New York. Although he states that the presence of books and toys does not insure their productive use, it is important to confront the child with objects he will find in school. Deutsch concludes that the lack of variety of media and of verbal exchange in the home leads to a "stimulus deprivation" that must be counteracted. Using pictures as a stimulus for language, as well as naming of objects with frequent verbal reinforcement, Deutsch has developed a curriculum that emphasizes aspects of language. Robison and Mukerji (1966) have also provided preschool free play situations with high teacher-pupil ratios. Props, costumes, trips, and telephones among other things are available for the encouragement of dramatic play to serve as the basis for discussion and elicitation of oral responses from children. Another program at the Institute for Developmental Studies (Gotkin and others, 1964) uses a telephone interview in order to obtain speech samples. This design calls for the analysis of language patterns and study to determine the degree of elaboration in speech.

Language oriented public school intervention programs include the Willow Manor Oral Language Project in Oakland, California (Inventory of Compensatory Education Projects, 1965) where work is taking place on the improvement of language patterns in the speech of 455 children of mixed origins. The Racine, Wisconsin Project (Olson and Larson, 1965) deals with twenty culturally deprived kindergarten children and utilizes puppetry, dictated stories, tapes, and Montessori materials in the stimulation of oral language. The results of this experimental study will be employed as the basis for curriculum planning for first grade.

The Cooperative Language Development Project in Nashville, Tennessee (Urban Child Center, 1965) employs the Peabody Language Development Kit, a picture association test, in eliciting language of first graders. At present, seven hundred children are participating in the experimental study to determine the efficacy of the technique. In Chicago (Daugherty, 1964) a program has been underway since 1958 to develop a series of curriculum guides for different districts within the area. These will supplement the current language arts teaching guides. The assumption made is that the needs of all children are not necessarily satisfied by the same curriculum.

Approximately three thousand children in twenty-four public schools in Columbus, Ohio (Urban Child Center, 1965) are enrolled in a program that is attempting to affect change within disadvantaged populations. The present focus of that project is improved language arts instruction through the use and training of additional school personnel.

The Detroit Great Cities Improvement Program (Wachner, 1964) recorded the oral language of post kindergarten children in four schools from individual adult-child interviews. That vocabulary was used as a basis for a beginning language arts program. In San Bernardino, California (Inventory of Compensatory Education Projects, 1965) experimentation is underway with a sample of fifteen hundred children in efforts to develop activities for increasing communication. Alexander Frazier (1964), working with twenty elementary schools in Ohio, has proposed that more attention be paid to language deficiencies at the time of entry into school. His program, a part of the Talent Development Project at Ohio State University approaches undeveloped language from the standpoint of uniting experiences with concept and language development. Frazier also notes that until experiences are conceptualized the child may have difficulty relating what he knows to reading texts.

Results of achievement in language related areas of a Ford Foundation Pilot Project (Buffalo Board of Education, 1961) show positive evidences of the effects of specific emphasis on improvement of skills through compensatory education. The Kings County Supplementary Experience

Program (Kings County Superintendent of Schools Office, 1964) set out as one of its objectives the development of an enriched language arts centered curriculum based on concrete experiences. Gains in achievement were attributed to this project from test scores at the end of one school year.

Studies of the Findings of the Effects of Compensatory Education on I.Q. Score

Hunt (1961) in his book Intelligence and Experience discusses the issues surrounding man's intellectual capacity. Although textbooks until the time of World War II tended to present intelligence as a fixed quantity, Hunt gives evidence that impoverishment of experience in early months can slow up the development of intelligence.

In evaluating compensatory education projects, I.Q. as a measure of intelligence is often a variable, reflecting current thought that this measure is no longer considered essentially constant.

The early studies of Klineberg (1935) were forerunners to research in attempting to answer questions on the nature versus nurture controversy. From data on migration of Southern Negroes to the North, he was able to note an immediate and marked favorable reaction upon intelligence. These data are supported by the work of North (1956) who concludes that the disparity between scores of white and Negro children decreases with improvement of environment and educational opportunities for Negro subjects. Lee (1951) was able to show that I.Q. scores of Southern Negroes who moved to a large metropolitan area showed increase in I.Q. score correlated with length of time and schooling in the North. Other studies in which change of environment brought change in I.Q. points include Skeels' (Skeels and Dye, 1939) research. He found that a group of twenty-five children showed an increment on the average of 27.5 I.Q. points when removed from an orphanage to a more stimulating environment. The follow-up study many years later verified the original results. Studies by Kirk (1965) indicate an acceleration of six or seven I.Q. points when a deprived child enters school. When improved environment was provided after the age of eight, increases in I.Q. score were difficult to obtain. Kirk asserts that less and less can be accomplished to accelerate mental development as the child grows older.

From a longitudinal study conducted at the Fels Research Institute for Human Development at Antioch College, Sontag, Baker, and Nelson (1958) concluded that the extent of change in I.Q. score in childhood has been underestimated. The median amount of change in their investigation of 140 subjects was 17.9 points. These researchers believe that intelligence test results in young children should be viewed cautiously for predictive purposes because of the idiosyncratic nature of childhood growth patterns.

The report of the Early Training Project (Gray and Klaus, 1963) in Tennessee reveals gain in I.Q. points with an experimental program while control group children showed decrease over the same period. Lee (1951) found that a group that attended kindergarten averaged greater increment than a group that entered first grade with no preschool experience. Deutsch and Brown (1964) in examining I.Q. scores of children found that, at the fifth grade level, those who had formerly attended preschool were significantly higher in scores than those who had not. A program in the Milwaukee Public Schools (Promising Practices from the

Projects of the Culturally Deprived, 1964) was designed to give assistance to in-migrant and transient children. Twenty-five of the twenty-seven children in that study showed gain in I.Q. scores within a three year period.

In summarizing reports of many studies in Compensatory Education for Cultural Deprivation Bloom, Davis, and Hess (1965) state that provision for a more adequate environment through preschool and other stimulating experiences results in increase of I.Q. points of ten to fifteen points. "In most instances intelligence of deprived children does not reflect a ceiling level of their learning ability . . . (this) will be realized only under the proper environmental conditions in the home and the school." (Bloom, Davis, and Hess, 1965, p. 72)

Descriptions and Studies of Children's Language of Varied Socio-Economic Groups

In order to ascertain what disadvantaged children lack in linguistic areas, it is necessary to investigate the language of children of other socio-economic groups.

Language is noninstinctive behavior that must be learned. A child learns to speak by making sounds, and from the feedback of his elders, he learns which sounds communicate meaning. Lefevre (1966) states that a child has command of his native tongue long before school entrance. Although he may falter when asked to conjugate a verb, he unconsciously uses the case or tense of those with whom he speaks. McCarthy (1954), in summarizing evidence on early experiences, supports the belief that the quality of a child's linguistic environment is the most important external factor affecting the rate of language development. Noel (1953) has advanced data that show that a child's usage has a close relationship to that of his parents. Regardless of his background and whether or not a child is speaking "grammatically," "normal fluent speech obeys about five or six grammar rules per second." (Joos, 1964, p. 205) Bellugi and Brown (1964, p.144) stress that a child's language competence extends beyond his sum total of sentence output. "All children are able to understand and construct sentences they have never heard but which are nevertheless well-formed . . . in terms of general rules that are implicit in the sentences a child has heard."

Since language is basic to learning, many studies have been done that describe the oral speech of children. Earlier approaches included that of Smith (1926) who investigated the development of the sentence and vocabulary of young children from eight months to six years. She found that with increase in age there was a tendency toward longer and more complete sentences. McCarthy (1930) used sentence length as an index to linguistic maturity. Templin (1957) also studied sentence length and these lengths were significantly longer than those in McCarthy's investigation of twenty-seven years earlier. Templin questioned, however, the use of oral speech in collecting data since inaccuracies and incompletions were more prevalent in oral than in written remarks.

More recent work has dealt with syntax. Strickland (1962) used linguistic categories in classifying the speech of children in grades one through six in an effort to isolate and describe language patterns and their frquencies in speech. Her examinations of oral language revealed no scheme for control over sentence structure. The commonly used pattern at all grade levels for the 575 children studied was that consisting of Subject-verb-direct object. While the major focus of this study was aimed at a comparison between oral language and the language of reading books, data collected on sentence structure pointed out that children at all age levels expand and elaborate sentences through movable units and elements of subordination. Basic patterns are the "building blocks" (Strickland, 1962, p. 102) of language.

Loban (1963) did a longitudinal study of oral language of children and its effectiveness in communication with 338 subjects from kindergarten through the elementary years. This investigation was unique in providing methods for analysis as well as data on interrelationships among the language arts. Loban's findings confirmed those of Strickland in that the Subject-verb-direct object pattern was used most frequently throughout the seven year study. Students in both high and low ability groups, across strata, used the same general structural patterns; however, the former achieved greater flexibility in usage. Data from both of the aforementioned studies were collected in adult-child situations.

A study by Hocker reported by Strang and Hocker (1965) analyzed oral language recorded in spontaneous situations. Each of the twenty-five hundred samples was examined for sentence pattern, length, vocabulary, and interest. Sentence length was found to be affected by the situation in which it was elicited and the dominant pattern used was the Subject-predicate-direct object. The variety in pattern in representative studies of children's language has led the authors to conclude that television, radio, and recordings have had an effect on language development.

Menyuk (1961) using a population of ninety-six children, half from the nursery school and the remainder from the first grade, tape recorded language in three situations. While one stimulus was a picture test, the other recordings were made in spontaneous settings in an effort to determine whether the same syntactic structures were used in both instances. Using techniques developed by Chomsky, Menyuk's analysis revealed that of the situations studied, all the basic patterns used by adults were utilized by the children in her sample. Francis (1962) probed the nature of oral language structure of one hundred randomly selected first graders. Her findings indicated that oral language and the ability to transform sentences through subordination was related to socio-economic status. All children displayed the use of a wide range of structure, the most prevalent pattern being the Noun-verb-direct object. DeGraff (1961) also from Indiana University, endeavored to find out whether language was different in structured and unstructured situations with children ranging in I.Q. scores from ninety to one hundred ten. Objects were presented for unsolicited comment while stories about a film represented the structured situation. In the former, freer situation, there was extensive use of the conjunction "and." It would seem that children were challenged more in the structured situation as evidenced by the increased output of speech.

From the studies conducted it has been concluded by investigators that most young children at the time of school entrance speak in specific patterns that can be isolated and described.

Studies and Related Literature of the Language of the Culturally Deprived

Gussow (1965, no pagination) cautions students of the disadvantaged against viewing "as more than theoretical any specific causal relationships between a given life style and a given language style." The dearth of research in this area mitigates against such generalizations.

Cazden (1965) in a Boston day care center exposed twelve Negro children of twenty-eight to thirty-eight months to two treatments in an attempt to aid the acquisition of grammar. She concluded that rich and varied verbal stimulation was more effective for this purpose than was special emphasis on sentence expansion. In a study by John (1963), first and fifth grade Negro children of three socio-economic levels were administered tests of language in an effort to look for differences. From these findings, John believes that specific feedback is necessary to develop abilities in categorizing and integrating learnings. The acquistition of this more abstract language appeared to be hampered by the environments of the lower class homes that were investigated.

Bernstein (1962) on the basis of emprirical studies in Britain, found evidence that leads him to conclude that environmental factors rather than potentional intelligence affect language patterns. Bernstein distinguished two general types of code, elaborated and restricted.

Using an elaborated code, a speaker has a wide range of alternative structures and vocabulary at his disposal. He codes his utterances as the situation arises, creating new structures to fit a particular referent. These are highly individuated and symbolize the uniqueness of the speaker. Passive structures, uncommon modifiers, and subordination characterize elaborated speech. Responses tend to be longer and slower as they become vehicles for abstract thought. This elaborated code is also referred to as a "formal language." (Bernstein, 1961b)

A restricted code, as opposed to an elaborated one, deals with the immediate and the concrete. Short, grammatically simple, and often unfinished sentences typify these utterances. Restricted codes use little subordination and the content is descriptive rather than abstract or analytic. This mode of speech results from common conditioning and consists of ready made "highly coded" phrases that designate referents in a particular sub-culture or family situation. Restricted speech is also called a "public language." (Bernstein, 1961b)

While those of the upper classes were found to use the elaborated or restricted code at will, the lower class subjects used only the restricted code in Bernstein's studies.

There has been controversy in the literature as to whether or not the American society is comparable in class difference to the British, and upon the application of this model. Nevertheless elements of Bernstein's dichotomy have been discussed by other scholars. Goldberg (1963) describes the language of the "lower-class" child as thing-oriented and concrete. Cohn (1959) views "lower-class" English as an inferior version of standard English and agrees with Bernstein that higher class speakers use either form by choice. Waetjin (1962) states that culturally deprived children tend to speak in short, simple, and often fragmented patterns. Ponder (1965), in summarizing research, mentions the same factors as Waetjin in addition to the paucity of spoken language. Affirming the tendency of the disadvantaged to deal with the concrete in their speech, Loban (1965) asserts that this group does not talk about feelings but shows emotion through gesture.

Newton (1962, p. 184) in discussing the implications of a non-standard speech states that language problems act as a barrier to minimal achievement for the "verbally destitute child in our verbally oriented schools." As Deutsch (1963, p. 171) points out, although the home is a noisy one, "the noise is not for the most part meaningful in relation to the child." His chances for learning auditory discrimination are then minimized.

Brainin (1964) notes the lack of verbal interchange between most disadvantaged children and their mothers at crucial early stages of development. The discussion on the lack of feedback supports Bernstein's (1962) thesis that lower class children know fewer words for common objects. In an early study Smith (1926) showed a relationship between social status and words known; but, Jesperson (1938) cautions those in language study to differentiate between words actually known and those used in conversation.

Thomas (1962) in a doctoral dissertation endeavored to gain insight into the oral language of white and Negro subjects in low socio-economic areas. From taped conversation, he examined protocols for length, structure, error, parts of speech, and vocabulary. Thomas' conclusions indicate that those of low socio-economic status were deficient in amount of speech, length of sentences, and quality of oral expression. Much of the literature through the years to the present supports these findings.

Need for the Present Study in View of the Related Research

The research on compensatory education projects is still in the formative stages, and there are few findings to indicate specific directions for alleviation of cultural deficits. However, the variety and number of studies is encouraging.

Investigations into the constancy of I.Q. scores are likewise a welcome introduction onto the educational scene. While psychologists have been conducting experimentation in this area for some time now, teachers too often plan with fixed barriers of mental ability in mind.

Gross indices such as sentence length are rarely used in present-day studies of oral language. A change in focus to investigation of syntax provides data on how, not merely how much children speak.

The present study, in an attempt to evaluate a project that has as its purpose compensation for cultural deficits, has as its dependent variable the outcomes of one year's supplementary enrichment on I.Q. score, achievement, and language behavior. Other analyses described the language of this particular sample.

Chapter III describes the design, experimental treatment, and procedure used in this study. It includes a description of the instruments used for data collection as well as the statistical and analytic techniques used in measuring the variables.

CHAPTER III

PROCEDURE

Since the present study was conducted in conjunction with a School District of Philadelphia project, hereafter referred to as the Learning Centers, a description of this program is provided. The purpose of this study is to evaluate the effectiveness of the Learning Centers program on I.Q., as a measure of intelligence, academic achievement, and language.

The Learning Centers Project

Housed in one of the sixty-eight schools participating in the Philadelphia Educational Improvement Program, this project was begun in September, 1964. The Learning Centers, located in the basement of the T. M. Peirce Elementary School, encompasses two facilities: a Mathematics Concept Building Laboratory (Lab) and a Children's Workshop. Jointly, the programs in these two areas attempt to provide enrichment through specific materials in the development of concepts in language, mathematics, and science.

The Mathematics Concepts Building Laboratory. The Lab consists of a small classroom and a playroom each equipped with multi-sensory materials. The classroom provides space for structured experiences where children, when ready, are introduced to the symbolic notations which parallel the laboratory experiences in the playroom. More formal seating, chalkboard, and prepared worksheets are characteristic elements of this room. All children enter the Lab classroom initially for a short group lesson. These sessions are teacher directed and focus on developing the language of mood, comparison, contrast, order, classification, and opposites among other things. Specific activities in the classroom part of the Lab include experiences with Cuisenaire rods, number lines, balancing, mapping, counting, and other similar activities.

The playroom adjoining the Lab permits freedom of movement and greater choice of materials. Materials are available for activities in constructing, grouping, measuring, building, and dramatic play and are designed to help children build numerical and space concepts and their related vocabularies as well as to develop the ability to make generalizations and abstractions. Tape recorders, typewriters, and calculators are available for use and children are encouraged to dictate stories to the staff. All activities here are self-selected. In order to facilitate oral language and freedom of movement, activiity groups are limited to fifteen pupils or less. Each group is scheduled in the area one hour weekly.

The Lab is staffed by a full time teacher, a consultant, and a Temple University student teacher. In addition, the classroom teacher accompanies her group and there is a visiting student teacher at each session.

The Children's Workshop. It is the aim of the other facility, the Children's Workshop, to establish first-hand experiences with a variety of equipment for both small and large muscle activity and to encourage individual and group creative effort. Paints, sinks, sand and soil tables, carts, and costumes comprise some of the many features of the program. These activities are largely under the direction of the teacher and a student teacher with consultation when requested. Sessions tend to be unstructured and music generally accompanies the activities.

Classes are scheduled in the space once weekly for one hour.

Journals are kept by the on-site personnel of happenings at all sessions in the facilities. The journal for each class is kept in a separate book providing bases for comparisons from week to week. Notations include progress of individual children, records of group activities, and children's dialogue recorded verbatim during the sessions. With student teacher aid, teachers and the center staff are able to read jointly their reports and to discuss the progress of the children immediately following each session. Tape recordings, films, observational techniques, and anecdotal records are collected and analyzed by the participating staff in an effort to:

1. Help provide teachers with insights regarding their students.
2. Identify ways in which children verbalize learning.
3. Sensitize teachers to the patterns, vocabulary, and fluency of children's speech.
4. Help teachers use the language of the children in early symbolic learning.
5. Develop effective strategies in working with a culturally deprived population.

6. Provide teachers and student teachers with instruments for describing behavior.
7. Investigate theories of learning from the standpoint of such concepts as reinforcement, motivation, and concept formation as they apply specifically to work with disadvantaged children.

The experimental group was exposed to this enrichment program twice weekly, one hour in the Lab and one hour in the Workshop, for a period coinciding with one school year.

Design of the Present Study

The present study represents an attempt to gauge the effectiveness of the Learning Centers Program on measured intelligence, achievement, and functional language.

The experimental group was drawn from the first grade population and consisted of three classes of first year children grouped homogeneously and identified in advance on the Philadelphia Verbal Ability Test respectively as high, middle, and low in mental ability.

The control group was drawn from a comparable socioeconomic area. Groups were matched on intelligence on the same instrument. The mental ability range in each group was as follows:

1. High ability group: 101 to 120.
2. Middle ability group: 91 to 100.
3. Low ability group: 80 to 90.

The total number of subjects included 141 children, divided in six classes of twenty-one to twenty-six each. The unequal numbers in groups were due to mobility of subjects.

Classroom subject matter for each group was held constant. Each teacher followed the Philadelphia Curriculum Guides in each relevant subject matter area, i.e., mathematics, language arts, and reading. Since both schools were participating in the Educational Improvement Program, designed to help low achieving children, each benefitted from additional materials and consulting personnel provided to the school.

The Variables of the Study

The independent variable in this study is the experimental program of the Learning Centers. Freedom and flexibility of curriculum, staff, and materials characterized the nature of the program that was administered two hours weekly to first grades at the T. M. Peirce Elementary School. This program was designed as a supplement to the regular classroom curriculum. Student teachers were also assigned to each of the experimental classrooms as a means of helping to provide for individualizing of instruction.

The dependent variables are the measures of growth of the school year's work. This study was designed to test the effectiveness of the experimental program upon the following:

1. Measured intelligence.
2. Academic achievement.
3. Functional language.

Instruments Used to Measure the Variables

The instruments used to determine the effects of the Learning Centers Program are described in this section.

Kuhlmann-Anderson Intelligence Test. The *Kuhlmann-Anderson Intelligence Test, Seventh Edition* was utilized to test the intelligence of all subjects in the sample before the enrichment program began and at the end of one school year. This test was revised in 1963. The deviation I.Q.'s of the Seventh Edition are standard scores with a mean of 100 and a standard deviation of 16. Norm sampling included variables of socio-economic level, size, and geographic location of nineteen communities in ten of the United States. The normative group consisted of 2942 children. Test-retest reliability coefficients computed after two months were +.87. Reliabilities resulting from corrected correlations of odd-even scores were +.93 and correlations between I.Q. scores of the Kindergarten booklet and this one were +.80.

Metropolitan Achievement Tests. The Metropolitan Achievement Tests, Primary I Battery were used to test achievement of all subjects in the sample prior to the inception of the enrichment program and at the end of one school year. The battery is comprised of a coordinated series of measures of achievement in the skill and content areas of the elementary school curruculum. Several forms of the battery are available for these purposes. The subtests used in the Primary Test are listed below:

1. Word Knowledge.
2. Word Discrimination.
3. Reading.
4. Arithmetic: Concepts and Skills.

The Metropolitan Achievement Tests were revised in 1959. The normative group included pupils from 225 school systems in forty-nine states and numbered over five hundred thousand. Reliability studies were conducted of this revision. The split-half coefficients are listed as follows:

1. Word Knowledge: +.90.
2. Word Discrimination: +.87.
3. Reading: +.92.
4. Arithmetic: +.90.

All subtests are paper and pencil tests and are timed. Results are reported as standard scores.

Philadelphia Reading Test. The Philadelphia Reading Test: Year One was developed in the 1940's under the guidance of the Division of Educational Research of the School District of Philadelphia. This instrument purports to measure reading ability of first graders, utilizing the vocabulary of several basal reading series used within the Philadelphia System. During the years 1962-1965 71,056 children throughout the city took the test at the end of first grade. The mean score for all years was 4.43 and the range of mean scores for those years was 4.14 to 4.71. No reliability measures are available on the test.

This test is untimed and instructions call for collection of test booklets as pupils complete them. Tests are administered to the entrie group as a whole. This instrument and the Reading subtest of the *Metropolitan Achievement Test* were used in gauging the independent variable.

Philadelphia Test in Arithmetic. The *Philadelphia Test in Arithmetic*: *Year One* was developed in 1962 in the office of Educational Research of the School District of Philadelphia. This test is designed to test knowledge of primary combinations in addition and subtraction. Although there are no reliability studies available on its use, a total of 81, 197 children participated in the testing program in the years 1962-1965. The mean score over the years for all children was 4.33. The range of mean scores for the city for those years was 3.88 to 4.69.

Directions for administering the test call for timing in each section. Observation of children during testing indicates that time allotments are sufficient. The entire classroom group takes the test in one sitting.

This test as well as the arithmetic subtest of the Metropolitan Achievement Test were utilized in testing arithmetic skills.

Dailey Language Facility Test. This instrument was developed by John T. Dailey, of George Washington University, who is now in the process of collecting normative data on its use. The three picture test was designed to measure facility in the use of language independent of vocabulary and specific information. The correct identification of objects in the pictures is immaterial. Scoring is based on syntactic structure as well as elaboration of ideas. One picture is a photograph, one a print of a Velasquez painting, and one a highly stylized drawing. The pictures are presented in Appendix A as are directions for administering and scoring the test.

Administered to a child individually, test directions call for the investigator to show the child one picture at a time. The subject is asked to respond orally to each picture with his own story, or to describe the picture if he will not tell a story. A tape recorder or direct transcription may be used to record responses. The child is given as much time as necessary. Scores for responses may vary from 1.0, which indicates a one-word answer, to 9.0 for a creative story. The highest attainable score for each subject is, therefore, 27.0.

An inspection of the scores of the subjects suggests reliable measurement in that pictures seemed to discriminate to the same extent, i.e., a single child's scores were consistent for all three pictures. While no data on reliability are available on the test, the inter-scorer reliability, with the use of three scorers for this study is reported in Table I, page 47. Since more than one rater scored responses, scores from all three raters were added together for a composite score on each subject in order to get a more reliable estimate of a single child's facility.

TABLE I

INTER-SCORER RELIABILITY OF THREE INDEPENDENT SCORERS FOR PICTURES ON THE DAILEY LANGUAGE FACILITY TEST

Picture One	Reliability		
	Scorer 1	Scorer 2	Scorer 3
Scorer 1	---	.76	.76
Scorer 2	.76	---	.82
Scorer 3	.76	.82	---
Picture Two	**Reliability**		
	Scorer 1	Scorer 2	Scorer 3
Scorer 1	---	.73	.76
Scorer 2	.73	---	.81
Scorer 3	.76	.81	---
Picture Three	**Reliability**		
	Scorer 1	Scorer 2	Scorer 3
Scorer 1	---	.73	.74
Scorer 2	.73	---	.78
Scorer 3	.74	.78	---

Category System for Analysis of Structural Pattern. For this facet of the study, a system for categorizing language patterns was developed by the investigator with the consultation of Anna Live of the University of Pennsylvania. Categories followed closely those used by Strickland (1962) and Loban (1963) for simple sentences. Additional categories were added in order to study more closely fragmented speech. As is the case with the above mentioned studies, results were reported as percentages in categories. Below is a listing of the system utilized, the System for Analyzing Structural Pattern:

1. Incomplete sentences.
    - a. Subject omitted.
    - b. Verb omitted.
    - c. Multiple run-on.
    - d. No pattern.
2. Simple sentence patterns.
    - a. Noun-verb.
    - b. Noun-verb-noun.
    - c. Noun-linking verb-noun.
    - d. Noun-linking verb-adjective.

    - e. Noun-linking verb-adverb.
    - f. Noun-linking verb-prepositional phrase.
    - g. Noun-verb-infinitive.
    - h. Noun-verb-noun-prepositional phrase.
    - i. Envelope form.
- 3. Transformations.
    - a. Two kernels.
    - b. Three kernels.

Analysis of Vocabulary Content in Protocols. In order to determine whether or not experimental and control groups varied in their vocabularies as well as to investigate whether or not culturally deprived populations use the same words as a representative sample of children across strata, A Basic Vocabulary of Elementary School Children (Rinsland, 1945) was selected as a source for this analysis.

The Rinsland list is an alphabetic compilation from six million running words collected from children's writing and recorded first grade conversations in all parts of the country. The sources for collection included stories, letters, expository writing, poems, reports, and examinations. Although the bulk of the listing was derived from written rather than oral samples, it was felt by the investigator that the list represented the most comprehensive one available. An inspection of the corpus led the investigator to believe that, despite its age, the list is current.

Measures of Fluency. Fluency, identified as total output of each subject on the Dailey Language Facility Test, was recorded by word count of each individual on cumulative responses to all three pictures. These were reported as raw data.

Collection of the Data

The evaluation of the Learning Centers Project was one school year in duration. Prior to the inception of the program, the experimental and control groups were pre-tested in September on the following instruments:

1. Kuhlmann-Anderson Intelligence Test.
2. Metropolitan Achievement Test.
    a. Word Knowledge Subtest.
    b. Word Discrimination Subtest.

c. Reading Subtest.

d. Arithmetic Subtest.

3. Philadelphia Reading Test.

4. Philadelphia Test in Arithmetic.

At the end of the school year, in June, experimental and control groups were post-tested on the measures listed above.

Experimental and control groups were also given the Dailey Language Facility Test. Classroom teachers and student teachers administered and scored achievement and language tests. For the intelligence tests Temple University psychologists were employed for testing and scoring.

Protocols from the above test were used for collection of oral language for analysis of:

1. Structural patterns.
2. Vocabulary content.
3. Fluency.

The results of these measures were used in making comparisons of the experimental and control groups in order to evaluate the effectiveness of the one year compensatory education program.

Statistical Analysis of the Findings

Several statistical tests were used in the treatment of the data. For the Kuhlmann-Anderson Intelligence Test and all subtests of the Metropolitan Achievement Test measures of true gain were computed to adjust for the influence of unreliability of tests involved. A two by three analysis of variance for unequal and diproportionate numbers was then performed on each measure of true gain. For these data a weighted means analysis was calculated using the IBM Library File Number 1620-6.0.110 program. For the Dailey Language Facility Test the same analysis was carried out on post-test scores.

For the Philadelphia Reading Test and the Philadelphia Test in Arithmetic a two by three analysis of covariance was performed on each post-test measure using its corresponding pre-test as a control. Since there were no reliability coefficients available on these tests, true gain measures could not be computed. For these analysis, the General Linear Hypothesis BMD 05 V program was used.

The schema for the analysis of data is presented in Figure 1 on the following page.

		Control	Experimental
Group As Identified by Philadelphia Verbal Ability Test	High		
	Middle		
	Low		

FIGURE 1

SCHEMA FOR ANALYSIS OF DATA

Additional Analysis of the Language Data

Protocols from the Dailey Language Facility Test were used for analysis of structural pattern according to the category system devised and analyzed by percentages of total speech.

Vocabulary was subjected to analysis using the Rinsland list in order to look for differences between experimental and control groups as well as for differences of culturally deprived groups from across strata populations.

Fluency, as measured by word count, was recorded as raw data.

Chapter IV contains the findings as well as a discussion of the outcomes of these procedures.

CHAPTER IV

RESULTS AND DISCUSSION

The present study is concerned with the affects of an enrichment program on first grade children of low socio-economic status. It tested the effects of a one year compensatory education program on intelligence, academic achievement, and the use of functional language. Other comparisons were made of syntactic structure, vocabulary content, and fluency from oral language protocols.

The Results

The remainder of the chapter is divided into four sections which include: (1) the presentation of the hypotheses as stated in Chapter I with tests of the significance and the findings, (2) a discussion of the aforementioned findings, (3) descriptive data as a result of investigation of children's language, and (4) a discussion of the findings of that study.

The statistical findings are reported in relation to the appropriate hypotheses, and the statistical tests of significance are discussed. The five percent level of statistical significance was selected as the criterion of acceptance or rejection for each hypothesis.

The Findings Listed According to Order of Hypotheses

Hypothesis H1. Experimental and control groups will not differ with respect to growth in intelligence.

True gain measures for the *Kuhlmann-Anderson Intelligence Test* were computed from pre and post-test scores of control and experimental groups and an analysis of variance was performed. A summary of these findings appears in Tables II and III.

TABLE II

MEAN TRUE GAIN I.Q. SCORES FOR KUHLMANN-ANDERSON INTELLIGENCE TEST

Mental Ability Group	Treatment			
	Experimental		Control	
	N	Mean	N	Mean
High	24	11.78	25	13.32
Middle	26	11.96	24	10.95
Low	21	7.95	21	12.14

True gain measures indicate that all subjects gained in intelligence as measured by I.Q. scores on the Kuhlmann-Anderson Intelligence Test. The gains obtained were greatest in the control class of high mental ability. It should be noted that the low mental ability class in the control group obtained the second highest gain.

TABLE III

ANALYSIS OF VARIANCE OF TRUE GAIN FOR KUHLMANN-ANDERSON INTELLIGENCE TEST

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
Mental Ability	0.015974	2	0.00799	0.00054
Treatment	0.0028098	1	0.0028098	0.00019
Interaction	153.85	2	76.925	5.1558**
Residual	2013.54	135	14.92	

$^{**}p < .01$

Analysis of variance revealed that F ratios for mental ability and treatment were nonsignificant; however, that the joint effect of the two variables was significant as indicated by the interaction which was significant beyond the one percent level. Since neither variable was significant alone, Hypothesis 1 was accepted.

Hypothesis H2. Experimental and control groups will not differ with respect to word knowledge skills.

True gain measures on the Word Knowledge Subtest of the Metropolitan Achievement Test were computed from pre and post-test scores of experimental and control groups. An analysis of variance was performed. A summary of these findings may be found in Tables IV and V.

TABLE IV

MEAN TRUE GAIN SCORES FOR METROPOLITAN ACHIEVEMENT TEST: SUBTEST WORD KNOWLEDGE

Mental Ability Group	Treatment			
	Experimental		Control	
	N	Mean	N	Mean
High	24	23.54	25	19.72
Middle	26	34.15	24	28.04
Low	21	27.14	21	30.76

Growth for all groups in word knowledge skills resulted after one year's education. Although the class of children of middle mental ability of the experimental group made greatest gains, sizeable gains were made in the class of low mental ability of the control group. While it might be expected that those of high mental ability would gain more, that was not the case. In the control group gain correlated negatively with mental ability; nor was there a direct relationship between mental ability and gain in the experimental group.

TABLE V

ANALYSIS OF VARIANCE OF TRUE GAIN FOR METROPOLITAN ACHIEVEMENT TEST: SUBTEST WORD KNOWLEDGE

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
Mental Ability	0.1842	2	0.0921	----
Treatment	0.0049422	1	0.0049422	----
Interaction	571.1	2	285.55	3.5131*
Residual	10972.41	135	81.28	

*$p < .05$

F ratios for mental ability and treatment alone were nonsignificant; however, jointly these variables had an effect. The interaction effect was significant beyond the five percent level. Since significance could not be attributed to mental ability or treatment alone, Hypothesis 2 was accepted.

Hypothesis H3. Experimental and control groups will not differ with respect to word discrimination skills.

True gain measures were determined from pre and post-test data on the Word Discrimination Subtest of the Metropolitan Achievement Test. An analysis of variance was performed. A summary of these findings may be found in Tables VI and VII.

TABLE VI

MEAN TRUE GAIN SCORES FOR METROPOLITAN ACHIEVEMENT TEST: SUBTEST WORD DISCRIMINATION

Mental Ability Group	Treatment			
	Experimental		Control	
	N	Mean	N	Mean
High	24	21.74	25	33.32
Middle	26	29.73	24	24.02
Low	21	31.61	21	29.23

Results of true gain measures indicated growth for all students in word discrimination skill. Gain in the experimental group was not in the expected direction. The growth observed was greatest for the high mental ability class in the control group. It is noteworthy that the low mental ability group in the control group also achieved high gains.

TABLE VII

ANALYSIS OF VARIANCE OF TRUE GAIN FOR METROPOLITAN ACHIEVEMENT TEST: SUBTEST WORD DISCRIMINATION

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
Mental Ability	0.027138	2	0.013569	----
Treatment	0.0015738	1	0.0015738	----
Interaction	2096.15	2	1048.075	12.011**
Residual	11780.25	135	87.26	

**p <.01

Analysis of variance indicates nonsignificant F ratios for both mental ability and treatment. While these variables were not significant alone, jointly they had an effect. The interaction effect was significant beyond the one percent level. Since neither treatment nor mental ability alone made for differences, Hypothesis 3 was accepted.

Hypothesis 4a. Experimental and control groups will not differ with respect to reading ability as measured by the Reading Subtest of the Metropolitan Achievement Test.

Measures of true gain were computed from pre and post-test data of experimental and control groups. An analysis of variance was performed. A summary of these findings appears in Table VIII and IX.

TABLE VIII

MEAN TRUE GAIN SCORES FOR METROPOLITAN ACHIEVEMENT TEST: SUBTEST READING

Mental Ability Group	Treatment			
	Experimental		Control	
	N	Mean	N	Mean
High	24	24.50	25	19.76
Middle	26	31.61	24	24.91
Low	21	30.09	21	17.28

Measures of true gain showed that while all groups showed growth over the period of one school year, gains were not however in the expected direction in that classes of high mental ability in the experimental and control groups did not achieve greatest gains. Growth was greatest for the middle mental ability class in the experimental group.

TABLE IX

ANALYSIS OF VARIANCE OF TRUE GAIN FOR METROPOLITAN ACHIEVEMENT TEST: SUBTEST READING

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
Mental Ability	984.83	2	492.42	3.388*
Treatment	2164.76	1	2164.76	14.896**
Interaction	393.24	2	196.62	1.352
Residual	19618.66	135	145.32	

*$p < .05$
**$p < .01$

This analysis revealed significant differences between experimental and control groups. For mental ability, significance was beyond the five percent level and for treatment significance was beyond the one percent level. Hypothesis 4a was rejected.

Hypothesis 4b. Experimental and control groups will not differ with respect to reading achievement as measured by the Philadelphia Reading Test.

Mean post scores were computed for the Philadelphia Reading Test from post-test data of the experimental and control groups, adjusted for pre-test score by analysis of covariance. The results of these procedures may be found in Tables X, XI, and XII.

TABLE X

MEAN GAIN SCORES FOR PHILADELPHIA READING TEST

Mental Ability Group	Treatment			
	Experimental		Control	
	N	Mean	N	Mean
High	25	5.38	25	6.52
Middle	25	3.04	24	4.21
Low	21	2.19	21	5.29

When mean gains of students in both experimental and control groups were compared, it was found that the class of high mental ability in the control group made greatest gains. While those of middle mental ability would be expected to gain more than those of low mental ability, this was not the case in the control group. In the experimental group, however, gain was in the expected direction.

TABLE XI

ANALYSIS OF VARIANCE FOR PHILADELPHIA READING TEST

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
Mental Ability	200.1458	2	100.0729	78.538**
Treatment	95.3967	1	95.3967	74.868**
Interaction	35.9780	2	17.9690	14.102**
Residual	172.0171	135	1.2742	

$^{**}p < .01$

TABLE XII

ANALYSIS OF COVARIANCE FOR PHILADELPHIA READING TEST: ADJUSTED FOR INITIAL SCORES

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
Mental Ability	97.6125	2	48.8062	38.1865**
Treatment	80.9207	1	80.9207	63.313**
Interaction	36.4580	2	18.2290	14.263**
Residual	171.2723	134	1.2781	

**p < .01

Results of the analyses of variance and covariance revealed significant differences for mental ability, treatment, as well as for interaction of the two variables. Whether or not initial standing was considered, results of these analyses were essentially unchanged. All differences were significant beyond the one percent level. On the basis of data from Tables XI and XII, Hypothesis 4b was rejected.

Since two tests were used in gauging growth in reading ability and in testing hypotheses of this growth, a comparison of rank order of classes on both tests appears in Table XIII.

TABLE XIII

RANKINGS OF CLASSES WITHIN EXPERIMENTAL AND CONTROL GROUPS FOR READING ABILITY

Mental Ability Group	Treatment	Metropolitan Achievement Test	Philadelphia Test in Reading
Middle	Experimental	1	5
Low	Experimental	2	6
Middle	Control	3	4
High	Experimental	4	2
High	Control	5	1
Low	Control	6	3

It can be seen that the order of the six classes differs materially from test to test. Since mean scores for classrooms would be expected to be relatively stable, especially for rankings of classes which differ in mental ability, the comparability of the tests appears to be in considerable doubt.

Hypothesis H5a. Experimental and control groups will not differ with respect to arithmetic achievement as measured by the Metropolitan Achievement Test.

Measures of mean true gain were computed from pre and post-test data in experimental and control groups. An analysis of variance was performed. A summary of these findings appears in Tables XIV and XV.

TABLE XIV

MEAN TRUE GAIN SCORES FOR METROPOLITAN ACHIEVEMENT TEST: SUBTEST ARITHMETIC

Mental Ability Group	Treatment			
	Experimental		Control	
	N	Mean	N	Mean
High	24	22.62	25	23.88
Middle	26	22.88	24	24.45
Low	21	23.61	21	18.76

Measures of true gain indicate growth in arithmetic for all classes in both experimental and control groups. Greatest growth as measured by this test was in the class of middle mental ability in the control group. Gain scores within both experimental and control groups were not in the expected directions. In the experimental group, gain was negatively correlated with mental ability.

TABLE XV

ANALYSIS OF VARIANCE OF TRUE GAIN FOR METROPOLITAN ACHIEVEMENT TEST: SUBTEST ARITHMETIC

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
Mental Ability	0.014718	2	0.007359	----
Treatment	0.0004068	1	0.0004068	----
Interaction	290.63	2	145.315	4.644*
Residual	4223.67	135	31.29	

*$p < .05$

For this test, F ratios were nonsignificant for mental ability and treatment although the interaction effect was significant. This would indicate that although mental ability and treatment were not significant alone, jointly these variables had an effect. The interaction effect was significant beyond the five percent level. Hypothesis 5a was accepted.

Hypothesis 5b. Experimental and control groups will not differ with respect to arithmetic achievement as measured by the Philadelphia Test in Arithmetic.

Mean post scores were computed for the Philadelphia Test in Arithmetic from post-test data of the experimental and control groups and adjusted for pre-test score by analysis of covariance. A summary of these findings appears in Tables XVI, XVII, and XVIII.

TABLE XVI

MEAN GAIN SCORES FOR PHILADELPHIA TEST IN ARITHMETIC

Mental Ability Group	Treatment			
	Experimental		Control	
	N	Mean	N	Mean
High	24	6.25	25	5.80
Middle	26	4.50	21	4.67
Low	21	2.38	21	3.10

Mean gain was computed and findings indicate that although all classes in both groups gained, the high ability class in the experimental group achieved greatest gains. Gain in both groups was in the expected direction.

TABLE XVII

ANALYSIS OF VARIANCE FOR PHILADELPHIA TEST IN ARITHMETIC

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
Mental Ability	244.46859	2	122.2342	58.76**
Treatment	0.72256	1	0.72256	----
Interaction	7.71322	2	3.8566	1.85
Residual	281.09528	135	2.0821	

$^{**}p < .01$

TABLE XVIII

ANALYSIS OF COVARIANCE FOR PHILADELPHIA TEST IN ARITHMETIC: ADJUSTED FOR INITIAL SCORES

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
Mental Ability	181.22736	2	90.6136	44.09**
Treatment	1.59696	1	1.59696	----
Interaction	4.25803	2	2.1290	1.04
Residual	275.43304	134	2.0554	

$^{**}p < .01$

Results of the analyses of variance and covariance revealed significant differences for mental ability. Whether or not initial standing was considered, the results of these analyses were similar. On the basis of data from Tables XVII and XVIII, Hypothesis 5b was rejected.

Since two tests were used in gauging growth and testing hypotheses in arithmetic achievement, a comparison of rank order of classes on both tests appears in Table XIX.

TABLE XIX

RANKING OF CLASSES WITHIN EXPERIMENTAL AND CONTROL GROUPS FOR ARITHMETIC ON THE METROPOLITAN ACHIEVEMENT TEST AND THE PHILADELPHIA TEST IN ARITHMETIC

Mental Ability Group	Treatment	Metropolitan Achievement Test	Philadelphia Test in Arithmetic
Middle	Control	1	3
High	Control	2	2
Low	Experimental	3	6
Middle	Experimental	4	4
High	Experimental	5	1
Low	Control	6	5

While the order of ranking of the six classes is the same for two classes on both instruments, wide variations in the cases of the other classes tend to question the comparability of these two instruments.

Hypothesis H6. Experimental and control groups will not differ with respect to the use of functional language.

The Dailey Language Facility Test was used to test this hypothesis in experimental and control situations at the end of one school year. Mean scores as composites of all raters were computed for all classes in experimental and control groups and an analysis of variance was performed on the results of that test. The findings appear in Tables XX and XXI.

TABLE XX

MEAN SCORES FOR DAILEY LANGUAGE FACILITY TEST

Mental Ability Group	Treatment			
	Experimental		Control	
	N	Mean	N	Mean
High	24	46.2	25	27.7
Middle	26	41.8	21	32.1
Low	21	40.1	21	35.3

Mean scores indicate a positive relationship between mental ability and achievement in the experimental group; but in the control group, this was the inverse. Highest scores were achieved by the high mental ability class in the experimental group and lowest scores by the high mental ability class in the control group. All classes in the experimental group exceeded those of the control group in scores on this test.

TABLE XXI

ANALYSIS OF VARIANCE FOR THE DAILEY LANGUAGE FACILITY TEST

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
Mental Ability	0.0031188	2	0.0015594	----
Treatment	0.2504814	1	0.2504814	----
Interaction	1104.23	2	552.115	3.955*
Residual	18844.10	135	139.59	

*p <.05

Analysis of variance indicated nonsignificant differences between experimental and control groups;

however, the interaction effect was significant at the five percent level. This would indicate that the reversal of direction of relationship between the experimental and control group was the only significant effect in the analysis. Jointly, mental ability and treatment accounted for the significance; however, neither variable was significant alone. Hypothesis H6 was accepted.

The Findings of Descriptive Investigations

As an avenue of further investigation, oral language protocols from the Dailey Language Facility Test were analyzed in order to determine which syntactic structures were used by experimental and control groups. This facet of the study was undertaken in an effort to describe the language of a selected group of first graders and to look for similarities and differences that might tend to reflect the effects of mental ability or treatment on the particular kinds of responses made to the picture stimuli. The findings of this analysis are presented in Table XXII on page 75.

Inspection of the frequencies in the various categories of simple sentence patterns reveals that all

TABLE XXII

LANGUAGE PATTERNS FROM PROTOCOLS OF DAILEY LANGUAGE FACILITY TEST: PERCENTAGES OF TOTAL OUTPUT

	Mental Ability Group and Treatment					
	Low Exp.	Low Con.	Middle Exp.	Middle Con.	High Exp.	High Con.
Incomplete Sentences						
Subject Omitted	1.5	2.0	1.0	1.8	1.0	8.1
Verb Omitted	10.0	12.3	6.7	6.7	3.3	15.3
Multiple Run-On	0.3	0.0	0.9	0.9	4.8	2.0
No Pattern	1.8	2.9	0.7	2.7	0.5	6.0
Simple Sentence Patterns						
Noun-Verb	12.2	10.7	9.0	16.5	6.4	14.5
Noun-Verb-Noun	25.8	32.8	29.5	41.8	34.5	23.4
Noun-Linking Verb-Noun	16.6	4.1	12.9	2.2	12.9	3.2
Noun-Linking Verb-Adjective	4.8	0.0	8.6	0.4	5.1	4.4
Noun-Linking Verb-Adverb	0.0	8.6	0.7	1.3	1.5	0.8
Noun-Linking Verb-Prep. Phrase	4.8	2.5	4.8	2.2	2.5	2.4
Noun-Verb-Prep. Phrase	12.9	14.3	13.8	16.4	19.4	11.3
Noun-Verb-Infinitive	5.9	0.0	0.7	1.3	1.0	0.4
Noun-Verb-Noun-Prep. Phrase	1.8	4.1	4.5	0.0	6.3	3.2
Envelope Form	0.3	0.4	1.0	0.0	1.0	0.0
Transformations						
Two Kernels	0.3	5.3	3.8	0.0	7.9	4.0
Three Kernels	0.0	0.0	1.4	5.8	0.5	0.4

classes in the experimental and control groups used the Noun-verb-noun pattern to a greater extent than any other. Cumulatively, those in the control group had a greater incidence of this structure in their total speech.

The next category of greatest overall usage was the Noun-verb-prepositional phrase. This pattern was used slightly more by the experimental than the control group.

All classes in the experimental group utilized the Noun-linking verb-noun structure more than did their counterparts in the control group, although all classes employed this form to some extent.

Experimental classes of high and middle mental ability were the only ones using all categories.

In the incomplete sentence categories, the control group showed cumulatively higher frequencies than did the experimental group. Most of the fragmentation in both groups was due to omission of verbs. The class of high mental ability in the control group used the highest percentage of incomplete sentences of all classes, i.e., more omissions of verbs and more omissions of nouns than any other class. The experimental class of high mental ability exceeded any other in the use of the multiple run-on form.

In the area of transformations, all classes in the experimental group utilized the two kernel category. In the control group, only those classes of high and low mental ability used this pattern. Of three kernel transformations, the middle group of the control school used highest percentages. The most frequent use of tranformations cumulatively was by the high mental ability class of the experimental group, comprising 8.4 percent of its total speech.

Vocabulary Content in Protocols

In an attempt to determine whether or not children of culturally deprived groups use the same words as a representative sample of children from other socioeconomic groups as well as to look for differences that might be attributed to mental ability or treatment. All words were looked up in *A Basic Vocabulary of Elementary School Children* (Rinsland, 1945). Results of the investigation appear in Table XXIII.

TABLE XXIII

LISTING OF WORDS USED IN THE PROTOCOLS OF THE DAILEY LANGUAGE FACILITY TEST NOT APPEARING ON THE RINSLAND LIST

Mental Ability Group	Treatment	
	Experimental	Control
High	barette ponytail playsuit band aid Miami Mexican	dryer
Middle	T.V. peanut butter huff	
Low		Germans sneakers

Results of comparisons with the Rinsland list revealed only twelve words of the 13,038 corpus, or body of words did not appear on that list. Subjects in the high ability class of the experimental sample used more words that did not appear on the list than any other group. Seventy-five percent of the total additional words were spoken by the experimental group.

Fluency

The protocols from the Dailey Language Facility Test for subjects in the experimental and control groups were investigated to determine fluency with oral language as measured by total word count. These findings are reported in Table XXIV as raw data.

TABLE XXIV

FLUENCY OF EXPERIMENTAL AND CONTROL GROUPS REPORTED IN WORD COUNT FROM PROTOCOLS OF DAILEY LANGUAGE FACILITY TEST

Mental Ability Group	Treatment			
	Experimental		Control	
	N	Words	N	Words
High	24	3596	25	1481
Middle	26	2689	24	1633
Low	21	1418	21	2221

Data indicate tha classes of high and middle mental ability in the experimental group spoke more words than did their counterparts in the control situation. In the control group word count correlated negatively with mental ability, while word count correlated positively with mental ability in the experimental group. The class of low mental ability in the control group had the highest word count in that group and produced more words as a response to the stimuli than did the group matched in ability in the experimental group, or than did other classes in the control group.

Discussion of the Findings

The results of the analyses are discussed in this section in the order that the hypotheses were presented.

Hypothesis 1 states that groups will not differ with respect to growth in measured intelligence. While it might be expected that those of high mental ability would make the greatest gains, as was the case in the control group, substantial gains for the low mental ability class in the control group can neither be attributed to mental ability nor treatment. Results suggest then that something in the learning situation may have made the difference and that what occurred within that classroom made for more gain than did ability or program.

In the light of the overall findings of gain for all groups, several questions come to mind. Would increase in I.Q. be probable in a representative portion of the population? What are some problems indigenous in the testing of disadvantaged children?

Ausubel (1963, no pagination) suggests that present I.Q. tests measure "functional or operating capacity at a given point of development", not innate potential. Since disadvantaged children are lacking in skills, they may be less familiar with vocabulary and less motivated. This might account for low initial test scores.

In a report from the Educational Testing Service, Campbell (1964, P. 2) talks about the disadvantage resulting from parental unemployment, lack of housing, books, and toys "all of which directly or indirectly affect test performance."

Anastasi (1958, p. 511) asserts that the culture selects certain activities as the most significant. These are then encouraged by the dominant culture. Anastasi comments, ". . . that the standing of certain minority groups is a function of the traits included under the concept of intelligence, or of the particular culture in which the test was constructed."

A report entitled "Guidelines for Testing Minority Group Children" (Journal of Social Issues, 1964) has much to say on the testing of minority group subjects. Factors impairing test validity include those of white examiners testing Negro children, exposure to test-taking procedures for the first time, lack of understanding of test instructions as well as poor motivation in a formal testing situation. While certain tests are reported to have validity for some specific purposes, it is stated that many are unlikely to reflect the capacity for development of disadvantaged children. The report suggested that if a test is likely to be biased against certain types of minority groups or if its validity for these groups is not known, some mention of these concerns should appear in the test manual. Subgroup reliabilities should be compiled and stated, since there is evidence that those from lower socio-economic levels tend to have a smaller spread of scores. This restriction in the distribution would then lower reliability as far as differentiation of measurement is concerned. Lastly it is recommended in the report that "everyday" behavior be used in gauging ability or competence of children who do not come from the cultural mainstream.

Several of the factors mentioned apply directly to the testing of the subjects in this study, e.g., the use of white examiners, the newness of the test-taking situation for many of the children. No indication of these concerns were cited in the test manuals used. However, the appearance of these issues in the literature is a welcome aid to researchers.

Hypothesis 2 was concerned with word knowledge skills as measured by a subtest of the Metropolitan Achievement Test. This hypothesis proposed that experimental and control groups would not differ. The hypothesis was accepted.

While the experimental class of middle mental ability achieved greatest gains, 34.15 points, the low ability group in the control school made the second greatest gain of 30.76 points. Results would then indicate that within this classroom, despite the low range of mental ability, the teacher had substantial effect. Lowest mean scores were achieved by the high ability class in the control group.

The testing of word knowledge entails a picture representation of an object with a choice of four words for recognition of the correct answer. It would seem that the development of these skills in the first grade classroom would include extensive use of concrete objects as well as discussion before moving on to the abstract symbolization of the printed word.

The classroom of high mental ability of the control school was known to permit no moving about, no initiation of topics, nor talking without permission. Were these facets of the classroom climate reflected in scores lower than would be expected from a group of high mental ability? While standardized tests provide data for interpretation, other instrumentation is indicated in providing the reasons for change or lack of change. From these findings it appears that more than factors of mental ability and treatment are at work in the classroom and that the teacher is a variable worthy of consideration.

Word discrimination skills were compared in Hypothesis 3 and it was found that experimental and control groups did not differ significantly.

Although answers to this test are entered as a pencil response within the test booklet, this is a listening test. Children are required to designate the word the teacher says. All groups showed gain in this area; in the experimental group, however, gain in word discrimination skills was the inverse of mental ability.

Those who made the greatest strides were the high mental ability class in the control group and the low mental ability class in the experimental group. A knowledge of these classroom situations indicates to the investigator that the high degree of control exercised by these teachers may have helped to prime the children for listening. Since results do not follow in expected directions, i.e., that those of high mental ability would show greatest gain, it is suggested that teachers exert important influences in the classroom and affect learning strategies of children that make for differences in achievement. Since no objective measures of categorizing teacher behavior were utilized in this study, these observations are reported merely as descriptions and not in behavioral terms.

The findings of gain for both groups in word knowledge and word discrimination at the end of one school year reflect, to the investigator, lack of skills of this nature upon entrance into first grade. How well do these gains reflect an accurate picture then? Literature and research on the testing of minority group children speak to several issues that might mitigate against initial success in standardized testing situations. Black (1965) points out that timed-test situations penalize the child of a low income family. Deutsch (1960, p. 3) asserts that "since testing becomes more and more imbedded in school-inculcated cognitive styles, test performaces of children who are less receptive to schooling are likely to suffer."

The testing of reading was done by two instruments that purport to measure the same facet of achievement. The Reading Subtest of the Metropolitan Achievement Test was used for Hypothesis 4a and the Philadelphia Reading Test for Hypothesis 4b.

All groups showed gain on both instruments and statistical analysis revealed significant differences for mental ability and treatment as tested by both instruments.

Therefore, these hypotheses were rejected.

While overall findings appear to be the same, the sources of variation were not the same in each test. The inconsistency of these patterns makes it difficult to draw inferences. Certain circumstances do however suggest some explanation. The Metropolitan Achievement Test has reliability coefficients while the Philadelphia test does not. While the former test is a 1959 revision, the Philadelphia test was developed sometime in the 1940's and has not been revised. Since both tests measure knowledge of the vocabulary of basal reading series, the Metropolitan test is more current. On the basis of this information, it would appear that the results of the Metropolitan Achievement Test would be more valid for use in interpretation of reading ability.

The middle mental ability class of the experimental group made greatest gains on the latter instrument in reading achievement. This finding is consistent with highest gains on the test of word knowledge. Both the word knowledge and the reading test contain the matching of pictures to the printed symbolization, so that the results of gain for this group on both tests would tend to support each other.

The low mean gain scores on the Metropolitan subtest for reading that were made by the low mental ability class in the control group were as might be expected. This subtest is the longest section of the test and the lower gain scores for this group may reflect short attention span. Although testing situations were standardized, it had been necessary for many of the children in this group to leave the room during testing and several children did not, of their own will, finish the test.

The general lack of similarity in the findings on the _Metropolitan Achievement Test_ as compared to the _Philadelphia Reading Test_ points to questions on the use of locally devised testing instruments.

In testing arithmetic, two measures were also used. The arithmetic subtest of the _Metropolitan Achievement Test_ was used as the instrumentation for Hypothesis 5a while the _Philadelphia Test in Arithmetic_ was employed in the testing of Hypothesis 5b. Test scores reflect gain for all classes in both groups; however, analysis of variance indicates significance on different variables. Only interaction effect was significant for data on the Metropolitan Achievement Test and therefore Hypothesis 5a was accepted. On the analysis of variance for the Philadelphia Test in Arithmetic, mental ability was significant, therefore, Hypothesis 5b was rejected.

The pattern of results on these two tests is not consistent. However, inspection of the instruments affords some rationale. Although both tests purport to measure arithmetic competence, the Philadelphia test is comprised only of examples of primary combinations in addition and subtraction. The Metropolitan arithmetic subtest tests ability in counting, making numerals, numeral recognition, and problem solving as well as computation involving primary facts. Since only a composite score is available on the latter test, it is not possible to equate that which is measured by one test with the other. In the light of this information, the results on these two tests becomes more meaningful.

On the Metropolitan Achievement Test mean true gain scores were very close for classes in the experimental group and were very slightly in favor of the class of middle mental ability. Gains for the experimental group were not consistent with mental ability. In the control group, however, the class of low mental ability gained approximately four points less than that of any other class in the combined groups. Since this particular class made lowest gains in the reading section of this same instrument, the findings would lead the investigator to believe that this class found the reading parts of the arithmetic test a deterrent.

The relative ranks on the Philadelphia test, a simpler test in terms of length and task, were what might have been expected in terms of mental ability. In each group, those of more ability achieved greater gains. These gains made for statistical significance. Findings would seem to have validity in that primary combinations are a part of the first grade curriculum; however, in terms of what constitutes the complete curriculum with regard to concept building, the use of this test only would seem inadequate. Although the Philadelphia test is recent and locally devised, it tests only a small proportion of what is stipulated as the first grade course of study in the Arithmetic Guide.

Hypothesis 6 stated that experimental and control groups would not differ with respect to use of functional language. Findings on the Dailey Language Facility Test indicate that the experimental group means exceeded those of the control group on this measure. Differences were not enough, however, to be significant except for the interaction effect.

Scores showed a relationship of mental ability to language facility in the experimental group. Bernstein (1961a, p. 292) believes that the ". . . level of linguistic skill may be independent of potential intelligence. . . (that) different environments affect language structure." It is postualated here that Bernstein's thesis has merit and that the environments of children from even the same locale may be sustantially different. Throughout the school year it had been noted by teachers in the experimental group that the brighter students had more interested parents, as evidenced by absence notes, trip money, and the like. These children also wore better and cleaner clothing and brought in books from home. Do these characteristics constitute a different environment and are these differences perhaps reflected in language behavior? Although the investigator may only conjecture, it is proposed that in the experimental group, home environmental differences may have made for high mean gain scores.

In the control group, scores of language facility were the inverse of mental ability. The low mental ability class made the highest scores and the high mental ability class made the lowest scores. This latter class also was lowest in word count of all classes in both groups and spoke with the highest percentage of fragmentation. In the class of low mental ability of the control group, word count ranked third of all classes of combined groups and transformations in usage were more than that which would be expected from low mental ability groups.

In the control group, it would seem from data compiled on subjects, that other reasons for achievement might be suggested. In the class of high mental ability the teacher restricted talking to answers to teacher-initiated questions. In the class of low mental ability, in which data indicate more than might be expected of children with such a low I.Q. score range, classroom patterns were different. Discussions, experience charts, and sharing sessions were characteristic parts of the school day. It is suggested then that these differences in working with children were reflected in scores of word knowledge, language facility, fluency, and pattern usage in which those of low mental ability in the control group achieved more than did those of high ability in the same group.

The analysis of structural patterns revealed some similarities and differences in experimental and control groups. That children come to school "knowing that language has pattern in an operational sense" (Wilson, 1964, p. 75) is corroborated by the responses of children in this study. Even in the class with the highest rate of incomplete sentences, the high ability control class, this category comprised less than one third of the total speech for that group.

Both the classes of high and middle mental ability in the experimental group used all of the categories in this system, indicating variety in speech pattern. An inspection of general findings on the use of patterns supports the thesis of Menyuk (1961) that all of the basic structure used by adults can be found in the language of children.

All classes used the Noun-verb-noun pattern most frequently as was the case in the Loban (1963), Strickland (1962), and Hocker (Strang and Hocker, 1965) investigations. Since these three studies did not deal with disadvantaged children per se but with a representative sample across strata, data seem to indicate that children from culturally deprived areas are using the same basic structures as those from other socio-economic groups.

Another category of usage by all groups was the Noun-linking verb-noun pattern. The experimental group used this pattern almost five times more than the control group at all ability levels. In Loban's (1963) study, this pattern was used by those who were more proficient with language.

The Noun-verb pattern was used in 14.5 percent of the speech of the control class of high ability. This class also used the greatest proportion of fragmented sentences. The degree of structure in this classroom, apparent from observation, may have had the effect of restricting speech, hence the lack of expansion. Consonant with this finding are those dealing with fluency and use of functional language. The high mental ability group of the control school had the lowest word count and the lowest mean score for language facility. This paucity in speech is one of the characteristics Ponder (1965) and Thomas (1962) enumerate in speaking of the disadvantaged and refers to what Bernstein (1962) calls a restricted code. Only for the high mental ability class of the control group would this seem to be the case. Results therefore cannot be extrapolated. Investigators must also be cautioned in that when speech is described as "less" or "more," there must be some objective basis for comparison.

The high mental ability class in the experimental group used the greatest number of transformations. This pattern is a departure from the simple sentence pattern by which "more complex structures of our language have been produced." (Loban, 1963, p. 20) The Noun-verb, or simplest sentence pattern, was utilized least by this group. These data would indicate that these children expanded their language to a greater degree and were not as dependent on simpler language patterns. The emphasis on expression in the experimental treatment in addition to high ability may account for this frequency of more complex forms of language behavior. These data, plus findings of highest word count, and highest percentages in multiple run-ons perhaps relate an ease with oral language that was a function of the interaction of ability and experimental conditions for the high mental ability class in the experimental group.

A breakdown of the 13,038 words from the protocols of the Dailey Language Facility Test revealed that only twelve words from the total output did not appear on the Rinsland list. Those words are enumerated in Table XVII, page 70.

Since seventy-five percent of the additional words were taken from the protocols of the experimental group, it might be conjectured that these subjects were perhaps the more flexible in their responses. However, since such a high percentage refers to twelve words only, theorizing may not be in order.

The overall findings lead the investigator to believe that disadvantaged subjects use the same basic vocabulary as children across strata and do not use an argot of their own. A comparison of protocols with those of other socio-economic groups to the same stimuli would be necessary before any generalizations could be made. It would appear then that if dialect differences do occur in the speech of the disadvantaged, for this sample they are not apparent in the aspects of vocabulary.

From the findings on fluency in the protocols to the picture stimuli, those in the experimental group spoke a total of 7703 words as compared with 5335 words in the control group. Although no statistical measures were used in measuring this variable, it seems likely that this excess of oral language in the experimental school might reflect the emphasis of the enrichment program. Children experiencing these conditions were exposed to small group discussions, opportunity to dictate stories, and the availability of one-to-one conversations with teachers. Objectives of the program included training in sensitizing teachers to listen to children and to accept language verbatim in informal settings.

In the experimental school, word count correlated with mental ability. This leads the investigator to look for some rationale. An excess of oral language does not necessarily indicate facility; therefore, it cannot be generalized that those who communicate "better," communicate more. Do teachers who deal with more able groups encourage more oral expression? Are children freer to speak, to initiate ideas?

In the control group, word count was the inverse of mental ability. Knowledge of the particular classes involved is helpful here in attempting to explicate these results. The highly structured classroom of the high mental ability group perhaps precluded openness in conversing. The "accepting" teacher in the low mental ability class perhaps encouraged expression. These ideas are injected here merely as observations in that no instruments were used in describing these teachers in behavioral terms.

Chapter V summarizes the findings of the study and states conclusions. Implications for working with culturally deprived groups as well as recommendations for further research and development are presented.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary of the Study

This study was an experimental investigation of the effects of an enrichment program on a selected group of first graders. Its purpose was to determine whether children experiencing the experimental conditions showed greater growth in intelligence and achievement and greater use of functional language than the control group at the end of one school year. An additional objective of the study was the analysis of oral language with reference to structural pattern, vocabulary, and fluency.

The subjects were 141 first graders in two Philadelphia schools, both of which were located in low socioeconomic areas. One half of the children received a supplementary enrichment program; and the remainder, at another school, served as a control. The independent variable was the multi-sensory compensatory education program to facilitate growth in concept development administered two hours weekly to the experimental group as a supplement to classroom instruction. In addition, one student teacher was assigned to each experimental classroom as a means of enabling to a greater extent the individualizing of instruction. The dependent variables were measures of growth in scores on the tests of intelligence, achievement, and language facility. Further investigation of oral language included analyses of structural pattern, vocabulary, and fluency. The hypotheses of this study are listed below according to their acceptance or rejection.

1. Hypotheses accepted:
    a. Hypothesis 1: Experimental and control groups will not differ with respect to growth in intelligence.
    b. Hypothesis 2: Experimental and control groups will not differ with respect to word knowledge skills.
    c. Hypothesis 3: Experimental and control groups will not differ with respect to word discrimination skills.
    d. Hypothesis 5a: Experimental and control groups will not differ with respect to arithmetic achievement as measured by the *Metropolitan Achievement Test*.
    e. Hypothesis 6: Experimental and control groups will not differ in their use of functional language.

2. Hypotheses rejected:

   a. Hypothesis 4a: Experimental and control groups will not differ with respect to reading achievement as measured by the Metropolitan Reading Test.

   b. Hypothesis 4b: Experimental and control groups will not differ with respect to reading achievement as measured by the Philadelphia Reading Test.

   c. Hypothesis 5b: Experimental and control groups will not differ with respect to arithmetic achievement as measured by the Philadelphia Test in Arithmetic.

Conclusions

The conclusions of this investigation are subject to the limitations of this particular study as enumerated in Chapter I; therefore, generalizations cannot be made except in the case of replication. Each conclusion that follows is presented in the order of the specific hypothesis to which it refers.

1. Hypothesis 1. Acceptance of this hypothesis indicates that the enrichment program did not have significant effect with reference to gain in I.Q. score.

2. Hypothesis 2. Compensatory education does not appear to affect growth in word knowledge skills.

3. Hypothesis 3. Supplementary enrichment does not appear to affect growth in word discrimination skills.

4. Hypothesis 4a. Reading achievement tends to be influenced by mental ability as well as by treatment as measured by the Metropolitan Achievement Test.

5. Hypothesis 4b. According to results on the Philadelphia Reading Test, reading ability is significantly affected by mental ability, treatment, as well as by the interaction of these two variables.

6. Hypothesis 5a. As measured by the Metropolitan Achievement Test, it would appear that arithmetic skills were not affected by compensatory education.

7. Hypothesis 5b. Supplementary compensatory education does not have a significant affect on arithmetic skills, as measured by the Philadelphia Test in Arithmetic.

8. Hypothesis 6. Acceptance of this hypothesis indicates that enrichment, offered as a supplement to classroom instruction, does not affect use of functional language.

From the study of oral language, the investigator draws the following conclusions.

1. Although some part of the oral language of first grade children in stimulus situations is fragmented, most of the speech is patterned.

2. Children at this grade level are able to use all of the basic patterns employed by adults. The dominant syntactic structure of all children in this study was the Noun-verb-noun pattern.

3. Although it is hazardous to draw inferences, from the findings of this study, it would seem that the oral language of the culturally deprived child does not differ from that of a representative sample of children in the population for vocabulary content. Although those of other groups might have described the same stimuli in different ways, the words in the oral language protocols in this study do not represent dialect differences.

4. Despite non-verbal home situations of the disadvantaged, children from this group do produce a great deal of language. (Moreover, how they speak communicates meaning to others through pattern and vocabulary.) Data presented in this study tend to support the current thesis that stimulation, be it human or material, elicits increased oral language output. More specifically, it appears that children who are accustomed to more freedom in expressing themselves, and to one-to-one contact with teachers, tend to be more fluent.

Implications For Working With Culturally Deprived Populations

Several recently advanced theses seem relevant at this time in considering the implications of the data collected.

Overall statistical results indicate nonsignificant differences for either treatment or mental ability in three of the eight hypothesis tested. It would appear then that the teacher is a most potent force in the classroom situation. Since the milieu of the culturally deprived child differs from the middle-class orientation, how can teachers be trained to maximize the development of these children most effectively?

Deutsch (1965, p. 87) believes that, "When teachers report that they are frustrated with the learning attitudes and potential. . . they are responding to a reality condition that, through their expectations, they have helped to produce." Wolfson and Spodek (1966) assert that successful instruction, particularly in language, rests on the interaction of the teacher and the child. Much has been written about the middle-class teacher and the working-class child. The problems of understanding the child and building rapport have not been aided by the high mobility as well as the preponderence of inexperienced teachers in low socio-economic areas. (Cloward and Jones, 1963).

Davis (1965) posits that before teachers can help students improve attitudes about themselves and school, teachers must first change their attitudes about the children. Lloyd (1964, p. 118) postulates that Negro teachers who insist that they cannot understand the children, "understand only too well." One of the emphases of the Banneker Group schools (Passow, 1963) in St. Louis is a prescription for teachers to abandon condescending attitudes toward the children before they can think of raising aspiration levels.

On the majority of standardized measures and descriptive measures, the class of low mental ability in the control group made high scores. In what ways was this teaching situation different from the others? Perhaps the climate of the classroom can best be described as that in the experimental preschool at the University of Illinois as "highly task-oriented, no nonsense." (Bereiter and others, 1965) In this preschool for culturally deprived children, full participation is required of all students rather than a goal toward which teachers work as was the case in the low ability, control group classroom in this study. Although observation in the classrooms participating in this research was not part of the study, in the frequent visits made informally by the investigator a "supportive, but firm" manner was obvious in the behavior of the teacher. It would seem, then from the results of this and other studies (Taba, 1964) that where mental ability is low and achievement is high that the teacher is a variable worthy of consideration.

Another concern is that of cultural bias in intelligence testing. How accurate are scores as reflections of "basic intelligence"? Eells (1953) discusses the possibility of defining intelligence as the ability to succeed in school. If this were the case, intelligence tests would then be regarded as scholastic aptitude measures. To Eells, intelligence is problem-solving ability in important life-like situations. For freedom from bias, tests would have to be composed of items and language common to varied subcultures in order to maximize motivation for all students.

Since many intervention programs focus on language, questions arise regarding the most effective way to test language facility. While carefully controlled experimentation is preferable for research purposes, Raph (1965) points out many difficulties. The race of the examiner might affect responses. The dialect of the subject rarely is that of the investigator (Carroll, 1960). Is the child "comfortable" using a tape recorder? How does language in structured settings approximate language with peers?

Anastasi (1958) questions the use of pictures as testing materials for those who have little experience with this type of representation. The reduced cues of a two-dimensional reproduction may lead to faulty perceptions on the part of the subject. Caution must also be exercised in selection of pictures that are unfamiliar to varied groups. Vygotsky (1962) reports on another method of collecting language data as a result of his research. When children were asked to tell about or to act out identical pictures, the narrators enumerated seperate objects while the actors rendered more clearly the sense of the action. John (1965) favors simply monitoring speech as a means of collecting language data. Smith (1941) found that for primary graders knowledge of words was affected by the method of testing.

The above mentioned implications would seem worthy avenues for consideration in working with less verbally oriented children.

Recommendations For Further Research and Development

Specific recommendations for gauging growth and working with disadvantaged populations are suggested here.

1. Studies such as this would be greatly enhanced by pre-test data on children's language facility. The many difficulties of testing young, culturally different groups have already been discussed. If it were possible to achieve "optimal" conditions, however, pre-test data could then be available in gauging change. It is recommended that the testing be done individually and as early as possible in the child's school career so that the results could be used diagnostically for purposes of aiding instruction as well as for evaluation.

2. Although this study and others of oral language have been descriptive, it is suggested that data be collected according to a category system and then analyzed statistically. In this way, tests of significance would be made available for future researchers.

3. Studies could be done using two or more standardized tests in measuring each variable. Since it has been acknowledged that the testing of young children brings its own motivational problems and questions of reliability, with the use of two or more instruments similarities and differences between and/or among tests could be made and a more accurate picture of achievement be drawn.

4. In order to facilitate research, it is recommended that efforts be made on the part of university

personnel to help in the creation of a central agency (perhaps governmental) for the pooling of procedures, methods, and findings of compensatory education projects. At present the lack of unique evaluating devices as well as difficulty in locating information make the job of the independent researcher problematic. The information obtained should not only be made available but should be disseminated among teachers "on the firing line." In this way. as findings become available, they can be put to quick use.

5. This study could not have been done without the clearance and cooperation of the Philadelphia School System. It is recommended that efforts be made to increase communication between school districts and universities so that university personnel become involved in planning and evaluation of similar projects. Feedback from these studies would be a valuable resource for those involved in pre-service training of teachers and such associations would permit "academicians" to get to the classroom to test the validity of their ideas.

6. It is proposed that in the training of teachers courses in the nature of language be compulsory. It is not suggested that formal grammar be taught in the prescriptive sense, but that teachers be helped to understand the place of the non-standard English of so many of their students. Basic knowledge of structural linguistics, dialects, and liguistics geography would seem essential for teaching in today's heterogeneous schools.

7. This study represents only a beginning of what might be done to investigate the oral language of disadvantaged groups. Since the writer

found that children in this study used the same patterns and vocabulary as those across strata, other areas should be explored in the identification of specific features of what has been labeled the "non-standard" English of this population. With trained personnel, the suprasegmental phonemes of pitch, stress, and juncture could be recorded, transcribed, and examined. Errors could also be qualified and quantified.

8. As an outgrowth of depth studies of oral language, operational definitions of non-standard English could be built and programs planned for the teaching of standard English.

9. In addition to those variables already included in this study, the findings in this investigation indicate that teacher behavior is a crucial element in the classroom and therefore warrants inclusion in future research.

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APPENDIXES

APPENDIX A

Dailey Language Facility Test
The Allington Corporation
Alexandria, Virginia
Copyright, 1965

Instructions for Test Administration
Scoring System
Pictures

DAILEY LANGUAGE FACILITY TEST

Instructions for Test Administration

1. What is your name?

2. How old are you?

3. Do you like to hear stories?

4. Could you tell me a story?

(If answer is "Yes," give a picture and say, "Tell me a story about this picture.

If answer is "No," say, "I'll bet you could tell me a story about a picture," and hand a picture to the child.)

If no response, say "Tell me what you see in the picture."

After response, say "What are they doing in the picture?"

At the end of this response, present pictures two and three.

DAILEY LANGUAGE FACILITY TEST

Scoring System

9.0 A good story with imagination and creativity.

7.0 A complete story

6.0 A detailed description, but no story.

5.0 More than one sentence with some elements of interpretation of movement or action.

4.0 More than one sentence, but no interpretation.

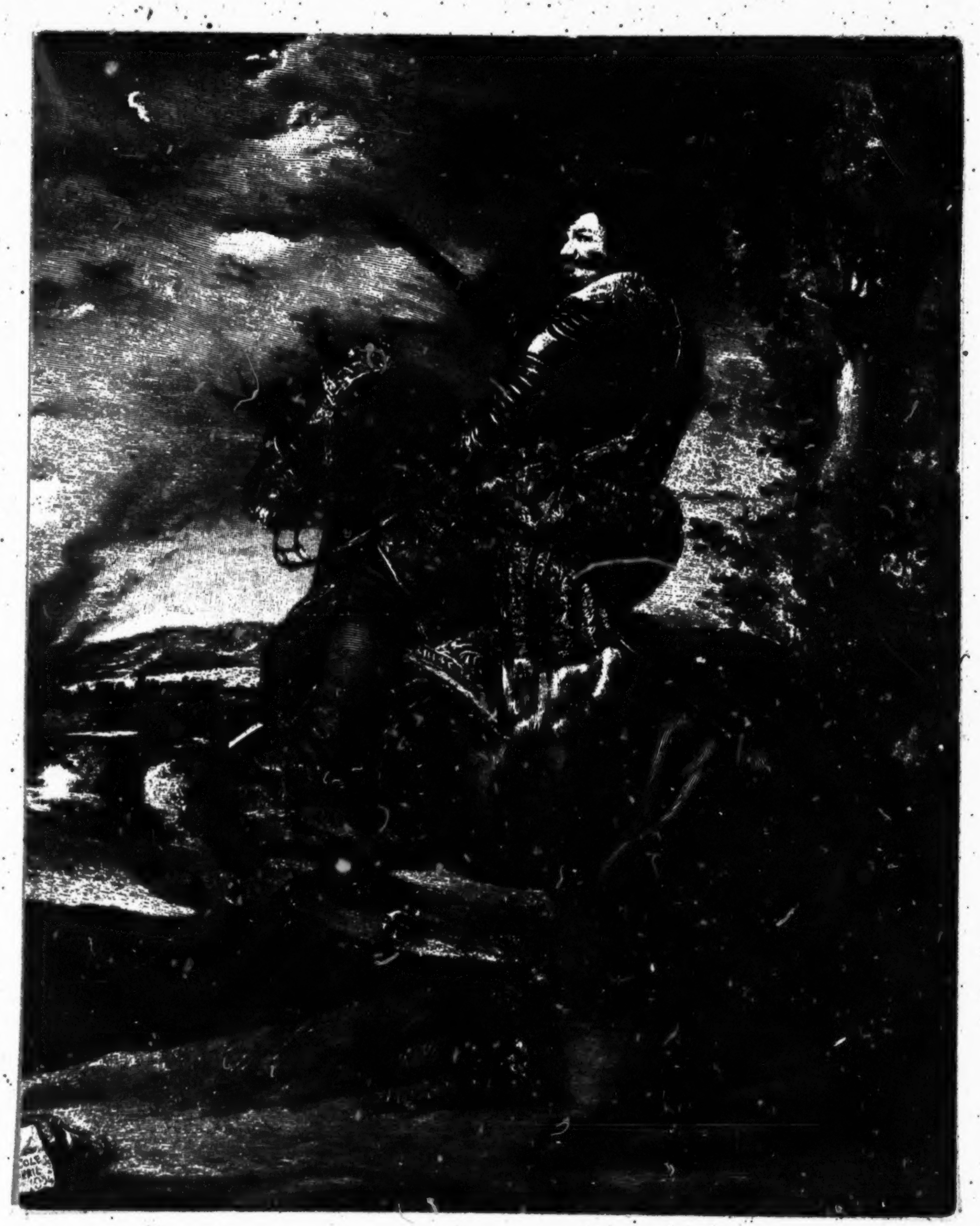
3.0 A sentence that makes sense.

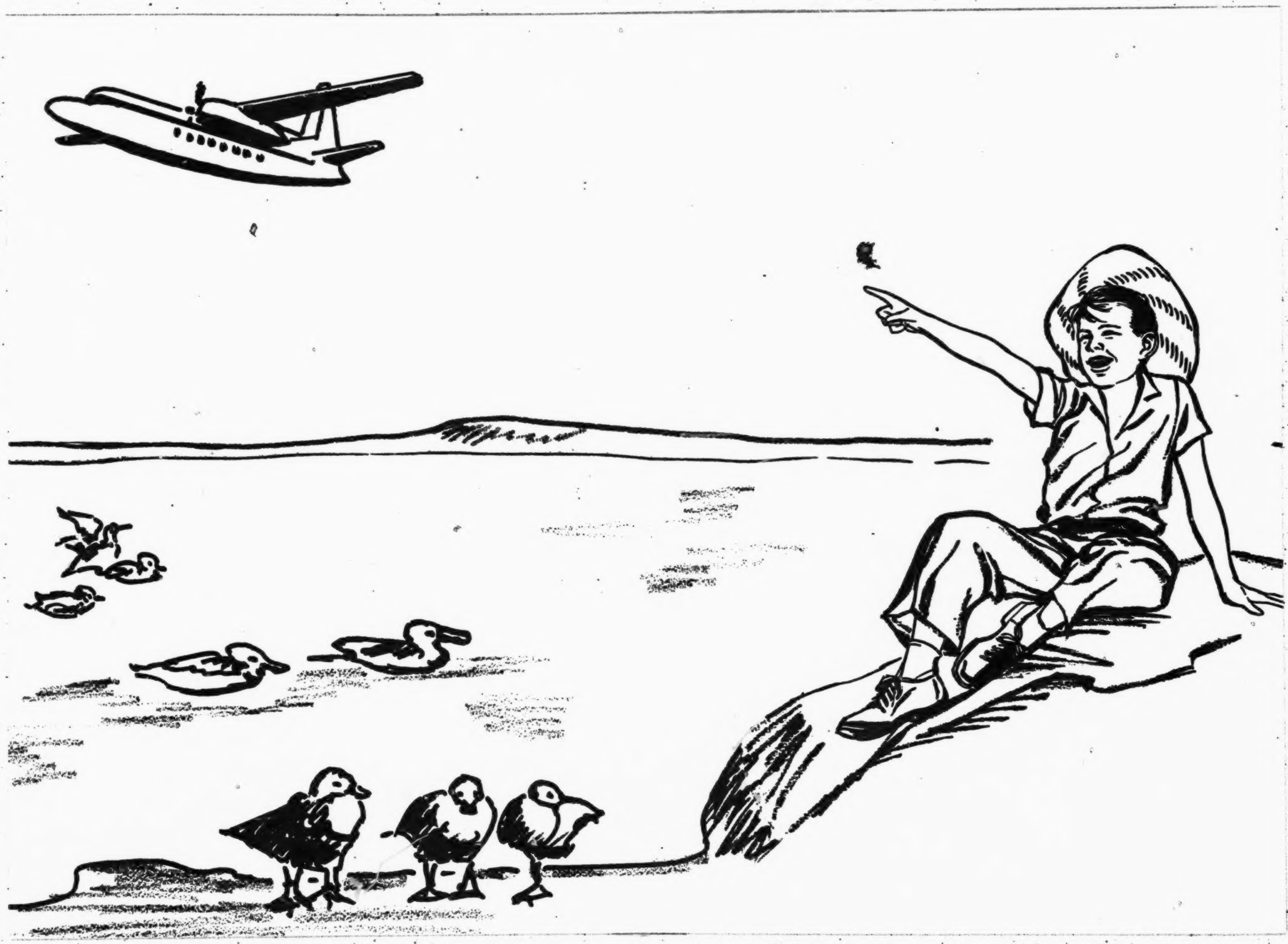
2.0 Compound responses - two or more words at time. A single describing action.

1.0 One single-noun response.

0.0 No response - garbled speech, or only points at picture.

If child does not respond at all to a picture, he should be given one of the laternate pictures (Plates X, XI, or XII) and scored on it instead of the original picture. If 6 pictures fail to elicit any reponse, other evidence from teachers or parents will need to be appraised to determine whether the lack of response is because of excessive shyness. This is extremely rare.





APPENDIX B

Oral Language Protocols From The Dailey Language Facility Test

Experimental and Control Group Low, Middle, and High Mental Ability Classes

High Mental Ability
Control Group
Subject No. 248

Picture 1: Three little girls sittin down.

Picture 2: A man riding a horse.

Picture 3: Six birds, three ducks, one little boy and one airplane. The little boy looks at the airplane.

High Mental Ability
Control Group
Subject No. 249

Picture 1: A mother puttin on a baby's shoe. Sittin down.

Picture 2: A man on a horse. Ridin.

Picture 3: The ducks swimming. Ducks coming out the water.

High Mental Ability
Control Group
Subject No. 250

Picture 1: Three girls and a lady. The lady is puttin on the girl's shoe.

Picture 2: A man ridin a horse. A man has a pipe in his hand.

Picture 3: A boy is pointing at a plane and ducks are swimming in the water and there's three on the ground.

High Mental Ability
Control Group
Subject No. 251

Picture 1: A lady. A girl. A girl. A girl. A girl.

Picture 2: A man. A horse. Riding.

Picture 3: A boy. Chicken birds. A airplane. In the water. Ducks.

High Mental Ability
Control Group
Subject No. 252

Picture 1: A story about in school. Puttin their clothes on. Puttin their shoes on.

Picture 2: A man on a horse. The horsie goin up.

Picture 3: A airplane goin up in the air. Little ducks on the water. A boy sittin down. Sliding down.

High Mental Ability
Control Group
Subject No. 253

Picture 1: A girl and another girl and another girl and another. Putten on clothes.

Picture 2: A man riden a horse and a black hat on. Ridin.

Picture 3: Airplane. Ducks. A boy. And water. Swimming.

High Mental Ability
Control Group
Subject No. 254

Picture 1: The teacher holdin the little girl and the little girl sittin on a desk too. Readin.

Picture 2: This man is on a horse-gotta gun-silver horse- horse on his feet- gettin ready to fight-gettin ready to ride with his horse.

Picture 3: The little boy see a airplane. Ducks on ground-some flying. Two more on ground. Other way standing. Little boy saying,"Look at the airplane." Him on a hill.

High Mental Ability
Control Group
Subject No. 256

Picture 1: I see a baby.

Picture 2: I see a man on a horse.

Picture 3: I see a boy sittin down and he see a airplane.

High Mental Ability
Control Group
Subject No. 257

Picture 1: A girl and her eye is bleeding and two other little girls and a mother. One of them is in bed. And she looking at the pulley and she stoopin down cause her eye is bleeding.

Picture 2: It's a horse and he trying to get over that way and that's a long way but he can't get over there that way and a man he trying to stop. He trying to go all the way down there and a horse wants something to eat.

Picture 3: A boy he was coming up there. A boy he is gonna--he is sitting down and he got a hat on and seven chicks and an airplane is in the air and a boy he calling.

High Mental Ability
Control Group
Subject No. 258

Picture 1: A girl sittin on a lady's lap. Sittin down.

Picture 2: A man on a horse. Shootin.

Picture 3: A boy sittin on a hill. Pointin his hand.

High Mental Ability
Control Group
Subject No. 259

Picture 1: I see a little girl- a lady-I see a little girl who's sittin down and a little girl who's on the bed and dishes and cups and I see towel and I see. They helping little children and the littel girl who's sleeping on the bed, and all the little children here and I see some-a washing machine- a dryer, a box and I see sneaker on this little girl and I think a bed.

Picture 2: A man on a horse and the sky and the ground and trees and flowers on the ground and I see a horse and I see a man. I see the shoes and I think they're Indians-little ones. Horse feet man on a horse and all that food and the walls. Lightning and sheets

Picture 3: Airplane, Ducks, Boy. Water. River Mountain up here and I see the boy here and I see him sitting down and I see him pointing at something. I see him looking at the airplane and the ducks trying to dance.

High Mental Ability
Control Group
Subject No. 260

Picture 1: She puttin on the little girl's shoe. She helpin her. This lady she puttin on her shoe.

Picture 2: This man he ridin a horse. The horse bucking up. They riding the horse.

Picture 3: This boy he pointing at the airplane. Some of duck sittin in the water. Some of them coming out.

High Mental Ability
Control Group
Subject No. 261

Picture 1: People. People helpin the children. They puttin on shoes.

Picture 2: A man on the horse. They ridin and they shootin.

Picture 3: Ducks on the water. They swimming and birds are flying and a little boy sitten down. The airplane flying.

High Mental Ability
Control Group
Subject No. 262

Picture 1: A lady holdin a little girl and the rest of the girls sittin down. The lady's puttin on the little girl's shoe.

Picture 2: A man is riding a horse. They riding. There a tree in the side and the sky's turning kind of dark.

Picture 3: Boy's sittin down and there's some chickens and birds and a airplane. The boy's looking at the airplane and the birds. Some of them is at the water.

High Mental Ability
Control Group
Subject No. 263

Picture 1: Sittin down.

Picture 2: A man

Picture 3: A duck. Swimming.

High Mental Ability
Control Group
Subject No. 264

Picture 1: A lady got a girl. Girl sittin on a bench. One of them sittin down and one is puttin on a girl's shoe and I see a cup and a bench and a bed and a lady with eyeglasses on.

Picture 2: A man ridin a horse. He gotta gun. The horse jumpin. He gotta sword and I see some trees and it's night time. Ridin. I see the ground the sky, some flowers on the ground. The stone from the tree. The man have a hat on a suit on.

Picture 3: A airplane-a boy pointing his finger and he have a hat on. I see some ducks, some birds. The boy have on shoes. See he's sittin down. Lookin. The boy smiling.

High Mental Ability
Control Group
Subject No. 266

Picture 1: A girl and a girl and her mother. In bed-one of them in bed and one getting the shoes on and one sitting down.

Picture 2: A man on a horse. He riding with a gun.

Picture 3: A boy and bird and a airplane and hill.

High Mental Ability
Control Group
Subject No. 267

Picture 1: I see a lady with a baby putting her shoes on.

Picture 2: That's a man on a horse. The man going for a ride.

Picture 3: The boy looking at a airplane and the ducks in the water. The boy is playing

High Mental Ability
Control Group
Subject No. 268

Picture 1: A baby with a lady holding her and a little girl sittin down. They gettin dressed.

Picture 2: A man on a horse. Ridin.

Picture 3: This is a little boy and some ducks and a airplane in the air. The little boy watchin the airplane. The ducks are in the water.

High Mental Ability
Control Group
Subject No. 269

Picture 1: I see a baby and a little girl and another little girl and a mother. The baby sittin on the mother's lap and the little girl is sittin on the table and the other little girl on the couch.

Picture 2: A man on a horse. The horse is________. The man got the gun and the horse is riding.

Picture 3: There's airplane up in the air and the airplane is goin in the air. There some ducks in the water. There some chicks-three chicks-three big birds and two ducks.

High Mental Ability
Control Group
Subject No. 270

Picture 1: A lady puttin on a baby's shoe. One girl is in the bed. One is sittin on the table. One girl is the bed. Girl on the table. Girl in the lady's lap.

Picture 2: A man with a gun. A man riding a horse. He gonna shoot somebody. He riding a horse.

Picture 3: Three ducks is on the grass. Two ducks is swimming. There's a boy sittin on a rock. There's an airplane in the sky. The airplane is flying. The boy is pointing.

High Mental Ability
Control Group
Subject No. 271

Picture 1: A girl and a lady. She put her shoe on.

Picture 2: Man on a camel-man on a horse. He puttin his feet on the_______. The man he got the gun in his hand. The horse ridin.

Picture 3: This is airplane riding. A boy pointing his hand. Ducks all around.

High Mental Ability
Control Group
Subject No. 273

Picture 1: A mother putting on her shoe. A girl sittin down. A girl in bed. They not saying nothin.

Picture 2: A man on a horse. And the horse jumpin up and the tree over here. They riding. The sky is moving. It's dark outside.

Picture 3: A boy pointing at the airplane. Ducks swimming in the water. A bird seven in the air and a boy sitting down on the fround. They saying nothing.

High Mental Ability
Control Group
Subject No. 274

Picture 1: The big girl holding the little girl on her lap. They lookin at a little girl's shoe.

Picture 2: The cowboy ridin on a horse. He gotta gun in his hand. Jumpin over a tree.

Picture 3: The little boy is sittin down looking at the ducks. Ducks comin out the water. Airplane flyin in the sky. Little boy pointing to the airplane.

High Mental Ability
Control Group
Subject No. 275

Picture 1: A girl. Sittin down.

Picture 2: That man is on a horse. They ridin it.

Picture 3: A boy sittin on the grass and ducks are swimming. The boy pointin to the airplane.

Middle Mental Ability
Control Group
Subject No. 222

Picture 1: Puttin on their shoes and one sittin down watching and the other one looking over there.

Picture 2: He's riding a horse and horse rising up and that's alot of grass and trees and dark part right up in there.

Picture 3: There was a boy who's seeing the airplane. Ducks are swimming in the water. The ducks got out --three. None of them flapped their wings and four are swimming.

Middle Mental Ability
Control Group
Subject No. 224

Picture 1: A girl she's holding a baby. A girl she's sittin down. Another girl she's sittin down. And a girl puttin on a baby's shoes.

Picture 2: A man riding a horse. The horse is jumping up. See the man with a gun.

Picture 3: A boy sittin down watchin the birds. And a duck. And a boy puttin his finger up pointin at the airplane.

Middle Mental Ability
Control Group
Subject No. 225

Picture 1: A little girl and a lady. Puttin something on the leg.

Picture 2: A man on a horse riding.

Picture 3: The boy looking at the airplane.

Middle Mental Ability
Control Group
Subject No. 226

Picture 1: No response.

Picture 2: A man riding a horse. Repeats same thing.

Picture 3: I see a airplane and a boy and ducks. I see a boy and an airplane and ducks.

Middle Mental Ability
Control Group
Subject No. 227

Picture 1: One girl sittin right there on the table and 1 girl sittin with her and 1 girl sittin there. I see box, cups, cans, bowls--I can't see this too well (pointing to part of picture) soap powder.

Picture 2: A man on his horse. Trees. He got a gun in his hands. Sky. Little Trees. Rocks. Hill. That's all.

Picture 3: I see airplane, ducks, little baby chicks, boy, water and a hill. The boy sittin down on the hill. That's all.

Middle Mental Ability
Control Group
Subject No. 228

Picture 1: Three girls and a lady. Some cups. Bowl. Flower. Bread. Sugar. A box. Soap powder. Table. Floor. Window. I don't know no more.

Picture 2: Soldier. Tree. Horse. A sword. A stick. A cloud. Leaves. Dirt. Grass.

Picture 3: Little boy. Airplane. Ducks and chicks. Water. A mountain. Hat. Feathers. Shoes. Pants. Shirt. Hat. Water.

Middle Mental Ability
Control Group
Subject No. 229

Picture 1: Little girl's sitting on a lady lap. Helping little girl.

Picture 2: A man riding a horse.

Picture 3: A boy sitting on the ground pointing to the airplane.

Middle Mental
Control Group
Subject No. 230

Picture 1: A girl getting out of bed. A mother puttin on the girl's shoe.

Picture 2: A cowboy riding a horse. A cowboy shoot the gun. Cowboy ride.

Picture 3: The boy pointin at the airplane. Duck turn his tail. Ducks swimmin in the water. Boy pointin at airplane.

Middle Mental Ability
Control Group
Subject No. 231

Picture 1: A lady and three girls.

Picture 2: A man on a horse.

Picture 3: An airplane flying in the sky. Ducks in the water and a little boy.

Middle Mental Ability
Control Group
Subject No. 232

Picture 1: Peoples. Kids. Some people got eyeglasses on and some don't. The girl sit beside the baby and the other girl lap.

Picture 2: The man ridin a horse and horse gone fast and he got his gun with him. See all the trees and the leaves and the rock. And the man ridin real fast and someone shootin at him and he got his gun out.

Picture 3: The boy...pointin his hand at the airplane. See chicken--five in the water and three not. The boy fell and he want to get in airplane and he can't. Boy sittin on ground.

Middle Mental Ability
Control Group
Subject No. 233

Picture 1: She sleep and she sittin down and she sittin down too and a mother fixing clothes on her and another sittin down too. The cups is up on the shelves and the girls got sneakers. The girl's got a swimming soup and she's got socks.

Picture 2: A horse and a man. A sword. A hat. A tree. A cloud. The dirt. Whiskers. Face. Legs. The clothes.

Picture 3: The airplane. The boy. The ducks. Water. Swimming. The hill. The arms. The hands. The birds. Hands. The hair. Shoes. Pants.

Middle Mental Ability
Control Group
Subject No. 234

Picture 1: I see a lady and a girl. And I see another girl. And I see some cups. I see table. I see a bed. I see soap powder. I see plates. I see a basket. And I see a box. And I see a lady. And I see a toy. And I see a basket.

Picture 2: I see a man and I see a horse and I see a stick -- he hold it and I see a tree and I see a cloud. And I see a tree some leaves on. And I see some rocks. I see a stick with a tree. And I see a horse tail. I see a hat. And I see some grass. And I see some white--some clouds. And I see a horse get on the brakes. And I see a man got on clothes. That's all.

Picture 3: I see some ducks. I see an airplane and I see a boy got on a hat. I see a boy got arms, legs, and shoes. I see some lines. I see some water. And I see some ducks drinking something and I see some birds flying and I see some socks and that's all I see.

Middle Mental Ability
Control Group
Subject No. 235

Picture 1: Little girl sittin on her Mommy lap. And little girl sittin down. And little girl put the cover over her ____. Little girl got her sneaks on. Little girl lookin at the dishes. Box and bed.

Picture 2: Man ridin on a horse. And he ridin his horse in the dirt. He got a gun in his hand. And the trees. And the clouds. And his hat. And the leaves on the trees. That's all.

Picture 3: Boy pointing at the airplane. And the ducks sittin in the water. And some ducks got out the water. And the little boy on the water. And the water's on the ducks.

Middle Mental Ability
Control Group
Subject No. 236

Picture 1: My mother she always put on my clothes. And she put on my sneaks for school. When I come home from lunch, I eat. And then she put on her clothes and go to work. Then my mother go to work too.

Picture 2: My fater start to work at that but he didn't. I saw that on television once. And then my mother tell me go to bed. I have to go to bed at 8 o'clock. Then at 1 I wake up and eat my breakfast.

Picture 3: My brother he went to a pond one time. He saw ducks in water. And me and my sister went to the pond and saw them. And then someday we gone to the park. Then my brother went swimmin he had to go to the park. And then my mother told me to go to the park and get my brother. And then my whole family went to the park and my father.

Middle Mental Ability
Control Group
Subject No. 237

Picture 1: She's putting on a shoe and she's sitting there and she's there. (pointed to each as she talked)

Picture 2: He on a horse riding.

Picture 3: A boy seeing a airplane and ducks and birds.

Middle Mental Ability
Control Group
Subject No. 238

Picture 1: A lady holding her little girl on the lap puttin on her sneaks. And two little girls sittin down puttin on their shoes. And after they finished, they were looking at their mother.

Picture 2: This man is on a horse. He pulls his horse back and jumps up. This man have a gun in his hand. And he lookin at something. And that's all.

Picture 3: Is a airplane in the sky. And birds flying. And little boy pointing at the airplane. And a duck floating in the water. And little boy pointing at something. And some ducks just now coming out of the water. And that's all.

Middle Mental Ability
Control Group
Subject No. 239

Picture 1: That's a woman holding a girl tying her shoe. And that's a girl sitting beside her.

Picture 2: That's a man riding his horse and the horse is holding himself up standing on two feet.

Picture 3: That's a boy watching the duck and he says, "There's an airplane in the sky."

Middle Mental Ability
Control Group
Subject No. 240

Picture 1: A girl Her foot is caught They lookin at her foot.

Picture 2: A man is ridin a horse A man is shootin a gun The horse is jumpin over that..

Picture 3: The airplane is flyin. The boy is pointin at the airplane. The birds are flyin The duck are swimmin. The birds are standing on the ground.

Middle Mental Ability
Control Group
Subject No. 241

Picture 1: A girl and I see her mother putting on the girl's shoe. I see a girl sittin down.

Picture 2: A man on a horse. He ridin the horse. That's all.

Picture 3: A boy sittin down. See a airplane. I see chickens on the ground. I see ducks swimmin. I see birds flying.

Middle Mental Ability
Control Group
Subject No. 242

Picture 1: It's three girls and a lady.

Picture 2: It's a man with a horse.

Picture 3: It's an airplane and some birds and a boy.

Middle Mental Ability
Control Group
Subject No. 243

Picture 1: A lady holding a girl and a girl sitting on a chair and a lady sitting on the bed and the lady putting on the girl's shoe.

Picture 2: A man on a horse and the man got a gun and the horse got something on its head and the trees.

Picture 3: Airplane, ducks, and a boy and birds.

Middle Mental Ability
Control Group
Subject No. 244

Picture 1: A mother puttin a little girl's sneakers on. And the little girl's sittin down. Little girl looking at mother putting on little girl's shoe. And little girl turn her head around.

Picture 2: A man ridin a horse. And he's got a stick in his hand.

Picture 3: A little boy sitting down and the ducks. The ducks stand in the water. Little boy said, "Look at the airplane." And the birds out in the water.

Middle Mental Ability
Control Group
Subject No. 245

Picture 1: A lady putting a girl's shoe on. And a little girl laying in the bed. And a little girl pulling her mother dress. She sittin on the table.

Picture 2: A man just ridin a horse. A hole. He got a stick in hand. And he got a het on his heat. And he got a moustache.

Picture 3: Airplane flying up in the air. And little ducks walkin in the water. Little boy sittin on the hill. And he got a rag wrap around his head. And he got clothes on. And shoes and socks.

Middle Mental Ability
Control Group
Subject No. 247

Picture 1: Lady's putting on little girl's shoe.

Picture 2: The man's riding a horse in the water.

Picture 3: The boy is seeing the airplane and the ducks are in the water and the boy is sitting down.

Low Mental Ability
Control Group
Subject No. 200

Picture 1: I see her holding her. She sitting down. She sitting down on there.

Picture 2: A horse. Man's sitting down on the horse. Trees. He's got a gun. I see the sky.

Picture 3: I see a airplane. I see ducks. I see chickens. I see a boy. The ducks are in the water.

Low Mental Ability
Control Group
Subject No. 201

Picture 1: A girl and a mother and a child. They sitting down.

Picture 2: He is riding a horse and got something in his hand. There is a tree and the ground. The sky. The world, water. Trees. A gun, boots, a hat, a mustache, rope. Horse has got hair.

Picture 3: The boy is pointing at the airplane and he's sitting on the ground. Hat, pants, shirt, socks and shoes. Birds, ground, airplane. The bird is flying in the air. That's all I got to say. A sword.

Low Mental Ability
Control Group
Subject No. 202

Picture 1: They're sitting down putting shoes on. Soap bottle.

Picture 2: A man on a horse making a war. Getting a sword. Germans soldiers killed with sword in stomach dead.

Picture 3: A boy watching the airplane flying to airport. The ducks sits in water. Mother duck said "See the duck in the water." Father said "See duck swim in the water."

Low Mental Ability
Control Group
Subject No. 203

Picture 1: Mother is putting on baby shoes. Girl watching mother put on baby's sneaks. Girl on bed looking at something else. The cups are in the cabinet. The washing machine across from bed. The cover fell on the floor.

Picture 2: Man riding horse. His horse is going up. He has a long gun, I mean the horse is going over some black paint. Trees over there. Clouds are blue up in the air. There is a note on the ground. The horse has a black spot. The water near the hill down there.

Picture 3: The boy sees the airplane. The plane is flying in the air. Boy pointing to airplane. Birds are flying. The plane higher then birds. Some are underneath. There is some food on the ground for the birds to eat. There is a line where boy is. The boy is sitting on a big rock.

Low Mental Ability
Control Group
Subject No. 204

Picture 1: The girl's sitting down. The lady's holding the baby. The girl is in bed.

Picture 2: Man is riding a horse. Trees. They riding.

Picture 3: A boy sees the airplane gone. Some ducks in the water.

Low Mental Ability
Control Group
Subject No. 205

Picture 1: They're laying. Two girls. There's another one. Ain't no more.

Picture 2: The horse. I see a man. I see a hat. I see a gun. I see a tree. Ain't no more.

Picture 3: Ducks. I see a boy and some water.

Low Mental Ability
Control Group
Subject No. 206

Picture 1: I don't know about that lady. That lady got a baby. The girl over there and other girl on the other side. That's all.

Picture 2: A man on a horse. A horse riding the man. The man got a rifle I think. That's all.

Picture 3: I see a boy. I see a two birds and I see two ducks-and three more and one ~~airpl~~ane.

Low Mental Ability
Control Group
Subject No. 207

Picture 1: The mother putting on the baby's shoes. The two girls sitting down looking at her mother. The other girl her looking back. The baby sitting on her lap.

Picture 2: This man he riding on a horse. The horse is raising his leg. The man is on the horses back. The man has a sword out.

Picture 3: The boy is pointing to the airplane. The ducks are in the water except one isn't in the water.

C

Low Mental Ability
Control Group
Subject No. 208

Picture 1: I see a girl-another girl, another girl and a lady. One got her eyes open, one got her eyes closed. This one got here eyes open.

Picture 2: There's a man riding a horse with a hat on and a sword and a gun and trees, flowers. His horse jumped over that thing.

Picture 3: A airplane flying. Some birds flying. Some ducks floatin in the water and a boy sittin down and has his hand like this (points.)

Low Mental Ability
Control Group
Subject No. 209

Picture 1: Kids. Sittin down.

Picture 2: A man riding a horse and some trees.

Picture 3: Chickens and some ducks and some birds, and a airplane and a boy. They sitting down.

Low Mental Ability
Control Group
Subject No. 210

Picture 1: She putting on her shoes. She's looking at her. The other one is looking back. She sitting on a table. She's sitting on a bed.

Picture 2: Ride a horse. The horse is galloping. They are in the country. The man don't have no gun. He got a hat on. The horse is jumping.

Picture 3: There chickens right here. A boy laughing at them. He got a hat on. He's pointin at the airplanes. Some ducks on the water. I see a duck flying.

Low Mental Ability
Control Group
Subject No. 211

Picture 1: They're putting on her shoes. The little girl is sitting on the table. Another girl is sitting on the chair.

Picture 2: The man is riding on a horse. The man is shootin. I see a tree. I see a stone on the ground. I see a moon. The sun is out.

Picture 3: I see a airplane. I see a boy. I see two ducks in the water. I see some ducks on the ground. I see a line.

Low Mental Ability
Control Group
Subject No. 212

Picture 1: Putting their shoes on.

Picture 2: A horse.

Picture 3: A boy. Birds. Airplane. Chicken. Duck.

Low Mental Ability
Control Group
Subject No. 213

Picture 1: Children and a lady looking.

Picture 2: A man riding on a horse. He has a stick in his hand.

Picture 3: A boy is pointing at the airplane. The ducks are in the water. The boy is sitting down. The airplane is flying.

Low Mental Ability
Control Group
Subject No. 214

Picture 1: Two girls. Three girls and one lady. The lady holding the baby. The lady putting on her shoes.

Picture 2: Man on a horse riding the horse.

Picture 3: I see a boy and birds and I see a airplane. The boy is sitting down on a rock.

Low Mental Ability
Control Group
Subject No. 215

Picture 1: A little girl sitting on a bench. Lady putting shoes on baby. Papers on table. Little girl turning her head - some soap powder. I see a sheet on bed. Little girl with baby with bathing suit on. Lady has eyeglasses on. One girl has striped dress on. I see some cups and I see a washing machine and I see a doll.

Picture 2: I see a man with a funny mustache. I see a horse riding the man. I see the sky. I see the horse with a gold thing on his head. The man has a hat and a pistol. I see the trees. The horse is getting up, and I see a bag of money.

Picture 3: I see a jet. I see eight baby chickens. A boy is sitting on a hill. Two ducks in water. Boy has a straw hat. He's pointing to the plane and he's laughing.

Low Mental Ability
Control Group
Subject No. 216

Picture 1: I see two girls and one more girl.and I see a lady. The girl is sitting on a table. I see four cups.

Picture 2: I see a man on a horse and he got a gun. And I see a tree. The horse is jumping up. The man is looking sideways.

Picture 3: I see a boy. He's pointin. I see some birds. I see some chick-chicks. I see a airplane.

Low Mental Ability
Control Group
Subject No. 218

Picture 1: Put shoe on. Girl looking at the mother. Another girl looking at the bed.

Picture 2: The horse is gone up. The man is shootin somebody.

Picture 3: The boy is pointing. The airplane is flying. The ducks is swimming in the water.

Low Mental Ability
Control Group
Subject No. 219

Picture 1: A woman is fastening the girls shoe. The girl is looking at the woman. The other girl is looking back.

Picture 2: The man is riding a horse.

Picture 3: The boy is pointing. The airplane is flying. Birds.

Low Mental Ability
Control Group
Subject No. 220

Picture 1: I see three little girls and one lady. The mommy putting little girl;s shoe on. The other little girls is sitting down quietly.

Picture 2: A man riding a horse. The trees are standing still. The man got a gun. The horse got a tail. The man got a hat. The man got a saddle.

Picture 3: The ducks are in the water. The little boy is pointing. There is a bird. There is a airplane. There is some water. There is thirty-three birds. The airplane is flying. There is a ground. There is birds flying in the air.

Low Mental Ability
Control Group
Subject No. 221

Picture 1: No response.

Picture 2: A horse. A man on the horse.

Picture 3: Airplane in the sky. Boy sitting down. Ducks on the water.

High Mental Ability
Experimental Group
Subject No. 147

Picture 1: People and there's a lady with glasses on and she holding the girl's foot. It got cups and plates on the shelf and there's girls sitting on the bed.

Picture 2: This a man on a horse and the horse is black. And the man is riding him and he got on a black hat. And the horse is running. And it's night time.

Picture 3: A boy watching an airplane. And there's ducks in the water. And the plane flying and the boy is on a big rock with a hat on.

High Mental Ability
Experimental Group
Subject No. 148

Picture 1: A girl hurt her leg. She did not cry. Her sisters and brothers were sorry. She had one brother. Her mother put a bandade. A little girl.

Picture 2: A man was on a horse. It was a black horse. He had a gun. The horse was black. The horse was not running. The horse had a tail. It was at night.

Picture 3: A boy was pointing at an airplane. The ducks were swimming the birds were looking. The airplane is going. The boy had on a hat. The boy had on pants and a shirt. The boy had on shoes. People is in the airplane.

High Mental Ability
Experimental Group
Subject No. 149

Picture 1: The story is about a mother with her family.

Picture 2: This is a picture of a man on a horse.

Picture 3: This is a picture about a boy looking at the airplane.

High Mental Ability
Experimental Group
Subject No. 150

Picture 1: Three girls. Sitting down. They gettin shoes. They going to get some clothes. They going to buy some balls. They going to buy some clothes too. They sitting on tables. And there's a lady holding a girl.

Picture 2: It's a man riding on a horse. And he have a gun. And he have a rifle and it's saddle on the horse. And there's bushes. And dirt on the ground. It's night time. The horse is jumping. The man has a beard. The clouds are dark. The horse has hair. And there's grass.

Picture 3: I see ducks. I see a airplane. There is a boy. There is water. There is land. I see mother ducks. I see a mountain. Ducks say, "Quack." I see dirt. I see eight ducks. I see two mountains. Ducks drink water. I see lots of dirt.

High Mental Ability
Experimental Group
Subject No. 151

Picture 1: It's a mother holding a little girl's shoe putting the shoe on. And there's some other girl sitting on the bed. And there's another girl sitting down on the table.

Picture 2: This is a man sitting on a horse with a stock in his hand. The horse is running. At night.

Picture 3: There's an airplane up in the sky and some ducks in the water. And a boy laughing and pointing his finger up at the airplane. And I see some chicks standing up and looking at something. And a boy sitting down. And the one duck gonna get ready to fly up in the air.

High Mental Ability
Experimental Group
Subject No. 152

Picture 1: Three girls. One is sleeping and two of them are awake. And somebody's right there (edge of the picture.) And a lady is holding the girl that's asleep. And she's taking her shoes off.

Picture 2: It's a horse that's jumping up. And a man is on it with a gun. And he have a hat on. And some kind of a cover is on the horse. And there's a tree.

Picture 3: A boy is pointing at an airplane and ducks is there. And the water is there and the boy is there with a hat on. And the boy is sitting on a big rock. And there's eight ducks. And the boy have on a hat. And one of the ducks is looking at the boy.

High Mental Ability
Experimental Group
Subject No. 153

Picture 1: A girl sitting on the table. A girl sitting on her mother's lap. A girl sitting on the bed. There's some cups and some bowls, some boxes some car junk.

Picture 2: A horse with a man on. He's riding on the horse. Some trees. Some grass and it's dark. It got some dirt on down here.

Picture 3: A boy with a hat on. He pointing this way. A airplane. And some ducks. And some dirt.

High Mental Ability
Experimental Group
Subject No. 154

Picture 1: It's a mother putting her little girl's shoe on. And there's another girl looking at the girl sitting in her mother's lap. And there's another girl looking at the white sheet. And I see dishes and some clothes on the floor. And I see little girls getting dressed. And there's another little girl that's laying on the bed. And I see a box and the mother has glasses on. And I see a little girl with a pretty dress on. And I see a little girl with a play suit on. And I see that the beds are not made up. And that the little girl is sitting on a white sheet and the mother has on a skirt. And I see that the little girl has the cover over her. And that both of the girls look sad. And I see a table. I see a flower pot. I see a dish and I see a jar. And I see a table. I see a flower pot. I see a dish and I see a jar. And I see a can. And I see a box trash can and a box. And a doll baby is laying on the trash can.

Picture 2: I see a horse. And I see a man riding on the horse. And the mas has a sword in his hand. And the man has a hat on. And he has a suit on. And he has a mustache and a beard. And I see a tree with leaves and sticks. I see flowers, and mountains and smoke. And clouds and a rock, and a frog some water. And grass. And arms, and a face. And legs, and I see some eyebrows. And some eyes, and nose, and a mouth. And some ears, and hair, and lines on his pants and his shirt. I see birds standing up.

Picture 3: I see an airplane. I see a mountain. I see ducks. I see a little boy with shoes on and socks. And he has some pants on and a shirt on and he has a hat on. And he's sitting on a rock. And he's pointing. I see and I see windows in the airplane. And I see some ducks running and I see a bird landing in the water. I see some grass on the water. And a tail on the airplane. And wings

High Mental Ability
Experimental Group
Subject No. 155

Picture 1: Well, I'll tell you your picture about. This little girl, she lived in a little red house by herself. And she went out and she was jumping rope and then her friends came to keep her company. And she was so disappointed because they went for a walk away from her because her friends wouldn't say hello to her.

Picture 2: I see a man and he was on a horse and one day he came around my street and he told me, "Do you want to ride?" And I said, "Yes". And my mother said-I called my mother-"Here you can go on the walk but don't stay long." But after that my mother was calling me and I was hungry. My mother she called me is so I can my homeword. I went on another ride. And then after that the man went into the house and he ate dinner with us.

Picture 3: Well, one time I was in the mountain and I saw an airplane and three little birds. And my mother said, "Come here Sandra." So I could get my lunch and was was on a picnic. And one time we went into the woods and went for a walk. I got lost and we followed the trees and we new our way.

High Mental Ability
Experimental Group
Subject No. 156

Picture 1: The woman is putting a shoe on a girl. One girl is laying in the bed. The bother girl is sitting down. The dishes are upon the shelf. One of the girls has her baby shoes on. The other girls don't.

Picture 2: This man is riding a horse. It is night time. This man has on a hat. Is this a stick or a gun? This man have a knife in his hand.

Picture 3: I see an airplane. I see birds flying in the air I see birds down on the ground. I see a boy pointing to the airplane. The boy is sitting down. The boy has on a hat. The boy is laughing.

High Mental Ability
Experimental Group
Subject No. 157

Picture 1: It look like a lady and three girls. And a lady is putting on the little girl's shoe. And the other little girl is looking at the lady. And the girl is sitting on the table.

Picture 2: A man on a horse. The horse is getting ready to ride. It is dark. The man has on a hat. The man has a sword. There are trees. There are leaves.

Picture 3: There are ducks. There is a airplane. There is a boy. The ducks are in the water. The boy is sitting on the edge of the water. The airplane is in the sky. The boy has on a hat. The water is white. The ducks are black and white.

High Mental Ability
Experimental Group
Subject No. 158

Picture 1: They need help. They are very poor. They are cripple. Some need help. Their parents don't have enough money to buy them food. Their parents are poor too and some children do not have parents. The end.

Picture 2: This (no, no). I think this is "Have Gun Will Travel." I think that's the man he looks just like him. Riding to see his master. His horse is covered with a crown upon his head. The skies looks like like it is going to rain.

Picture 3: A boy sees an airplane. I think he is a Mexican boy. He have ducks around him in the water. I think the boy comes from Mexican town. Some ducks are swimming. Some are not. The hills are high for people to climb one. The boy is saying something. The plane does not hear him. It keeps going and going.

High Mental Ability
Experimental Group
Subject No. 159

Picture 1: She's putting on a little girl's shoe.

Picture 2: It is night? He's riding on a horse. He got a sword.

Picture 3:. The little boy seen an airplane and he seen ducks in the water.

High Mental Ability
Experimental Group
Subject No. 160

Picture 1: A girl sitting on a table. And a lady. The lady is taking off their shoes. And I see some cups.

Picture 2: That's a man riding on a horsey. He has a gun in his hand. And I see a tree. .

Picture 3: I see an airplane and I see a boy pointing at the airplane and I see some ducks in the water.

High Mental Ability
Experimental Group
Subject No. 161

Picture 1: A little girl is hurt. And the lady's helping. And other children are watching. Girls are watching.

Picture 2: A man is riding a horse. And he's dressed in black. And it's light. And he is riding a horse. And trees are beside him.

Picture 3: A boy is pointing at an airplane. And he's talking to somebody. And he's sitting on a rock. And birds are around in the water.

High Mental Ability
Experimental Group
Subject No. 162

Picture 1: A lady is putting a girl's shoe on. A girl is looking at her. A girl is looking back.

Picture 2: There is a statue. There is a man. There is a horse. It is trees. There are leaves on the trees.

Picture 3: There is a little boy pointing. There are ducks in the water. There is an airplane in the sky. The boy has a hat on.

High Mental Ability
Experimental Group
Subject No. 163

Picture 1: It's a lady holding some girl putting on her shoe. There's other girls in here. A girl is sitting on a table. And a girl she's laying in a bed. There's some cups on the shelf. I see a box.

Picture 2: I see a man on a horse. And he has a stick in his hand. And it look like the horse is gonna jump. I see some trees. I see some grass. Look like he have a sword. I see stones.

Picture 3: Ducks in the water. I see a boy pointing at something I see an airplane. I see birds, I see water. The boy have a hat on. I see a duck getting ready to fly.

High Mental Ability
Experimental Group
Subject No. 164

Picture 1: I seen this box of girls sitting on people lap. I saw someone sitting on a table. This is a nice picture. I see cups and bowls and people that got on glasses. Some have long hair. Some do not have long hair. And that is the end.

Picture 2: This is a man on a horsey. He will ride a horsey. I wish I can ride on one. He has on a hat. The horsey is plack. This coat is like something looks like a cowboy. He has a gun and the horsey got a, have a golden thing on his head, ears. And that is the end.

Picture 3: This is a boy with a hat on his head. He has on shoes and socks and pants and shirt and hat. This hat has black spots in it. He combs his hair. The airplane was black and white with black spots in them. And the birds, ducks were black and white. And the boy was pointing at the airplane. And that is the end of the story.

High Mental Ability
Experimental Group
Subject No. 165

Picture 1: She is putting on her shoe and there's somebody helping her. There's a lot of dishes and cups and people are sitting on benches. And there's clothes. They is washing. And when they wash came back, they had clean clothes.

Picture 2: He on his horse. He have a stick in his hand. They stop because a hole was in front of them. And it was day when they was riding.

Picture 3: That was an airplane. There was some birds. And that was a boy. He was telling them where to do. And that was at the North Pole when it was snowing. And he's telling the birds to go chase after the plane.

High Mental Ability
Experimental Group
Subject No. 166

Picture 1: It's a picture of three girls and one lady. And it got a table in it. And it have a house. And some dishes.

Picture 2: That got a man in it riding a horse. Got some trees and he got a gun. And he got a hat on. He got a sword. The sky is white.

Picture 3: It got an airplane in it and ducks. It got a boy in it. He got a hat on. And some water in the pond.

High Mental Ability
Experimental Group
Subject No. 167

Picture 1: A lady holding a girl to put on her shoe. And another girl sitting on the table looking at her put on her shoes. And that girl, she's in bed looking over here.

Picture 2: The man riding a horse. And he have a stick. And he have a black horse and a black hat. And his horse is standing on two foots. And the man got on black gloves.

Picture 3: I see some chicks and a jet and a boy with a hat on and he's sitting on the rocks. And I see some water. And the boy see a jet. And the chicks are flying in the water.

High Mental Ability
Experimental Group
Subject No. 168

Picture 1: The lady has this girl on her lap. The lady putting her shoe on her foot. So when she put her shoe on her foot she might complain. So the other little girl is looking at the lady putting on the shoe. And so the other little girl is staring at the lady putting on the shoe. So the rest of the children have a game and they're looking at the game they're playing. So the other little girl she ain't playing the game because she was a might little too naughty, so that's why she wasn't playing the game. And so the other little girl right here have a little table where the children can clean dishes and everything. So they aren't playing with the toys right now they have to do what the teacher says. And so over here, the little girl has a black striped dress on - light black. So the lady got on glasses and she got on a skirt. And she have on a white blouse. And so the lady she have on a bracelet. And she have black hair. And so she doesn't have on no earrings, no lipstick, black shoes. (I can tell). And the little girl have a barret in her hair and she have her hair curled. And so the other little girl that I said was staring at her has a pony tail with white ribbons. And have about four cups and one bowl, two paddles and, trash can, and one can and one (you know like those things, when you want to w ash a table off, one dish cloth.

Picture 2: Cowboys. So the man he's on a horse. He got a rifle in his hand. The horse he's jumping up. He have a black hat on. He have a black mustache. The horse is black. And the man put something like a crown on the horse's head. The man has striped shoes on. And he have the thing that you can put your foot on. And so the man have these three things hanging down. It's silver, and part of it is black. The horse jumping up because he see big holes. Trees is dark so part of the leaves fall off. And the man have another gun stuck in the horsey box. And I see the man he's looking at a house he found. I see the moon getting covered up by the clouds.

High Mental Ability
Experimental Group
Subject No. 168

Picture 2: (continued) And I see the clouds moving. And I see the clouds getting ready to disappear. I see part of the grass. And I see part of the water. And the rest of the grass is ready to tear, break apart. And I see a little box here and this rope on it. And I see rocks, some bricks and I think the trees getting ready to die. It's nite time.

Picture 3: I see the airplane. Under the airplane, the part that is sticking out is black. It's a jet that people get on. The plane carrying them to Miami Beach. I see the duck in the water. I see part of the hill and I see the boy pointing to the jet. The boy have on white shoes, the boy have on white pants and part of the boy is traced over with black crayon. And the boy have on a white shirt. It don't have no sleeves. And the boy have on a white hat with black stripes inside his hat. He has black hair on his head.

High Mental Ability
Experimental Group
Subject No. 169

Picture 1: I see two little girls, three little girls and one mother and a table and cups and a blanket, a house. Working. Another putting on the baby's, little girls shoes. A little girl sitting on the table. I see a sheet and a little girl on the bed and a dish and a box and the mother with glasses on the little girl sitting in her mother's lap. The mother got a watch one. The mother sitting on the bed. And I see food and a cup. A trash can and I see the little girl's socks. And I see a mother putting on the little girl's clothes. And one girl has a ribbon on her hair. And one little girl has her hair down. And one girl has a bobby pin in her hair. And a little girl looking at her mother. And I see a little girl making up the bed. And a little girl sitting on it. And one little girl looks like she's sleepy. And her mother got long fingernails. Her mother got short hair and her little girl sitting on the blanket with her mother. And the cover messed up. And a sugar dish. And a flower pot. And I see a broom sweeper. And I see a basket. And I see the little girl got on a bathing suit and another little girl got on a dress and another little girl got on a suit. And a picture on the wall. And I see a can and a pepper shaker. And I see legs on the table. And I see a shelf and I see names on the house and the little girl got a bow on her bathing suit. And I see names on the house. And I see TBB and a roof on top of the house. And a bottle with a top on it. And all of them got black hair. And mother putting on the girls shoes and socks and the other girls are already dressed up. And I see a sheet on top of the bed. And I see a sheet on the bed, and I see the black floor. And I see a salt shaker and a bomb that you put trash into. And white table legs. And a table crack. And I see white walls.

High Mental Ability
Experimental Group
Subject No. 169

Picture 2: And it getting dark and a man with a mustache on with his coat and hat on riding a horse. And a horse with jumping over the hole. And I see trees and a wagon. The horse tail. And I see flowers on the ground and the ground is wet. And I see a bag on the ground. And I see the dark. And the ground slippy. And I see the water and rocks and a cover on the man I see grass and I see a big pole and it is brown. The horse is slipping and a horse long fingernails. And the horse is black. And the man riding on the horse. The man has a black hat on. And I see the slippy ground. And I see a lot of trees on the pole. And I see the white sky. And a round circle on the ground. And the sky is light.

Picture 3: I see chickens in a water. And I see three chickens out the water. And I see a boy with white clothes on and a white hat. And the chickens is white. And the boy got white shoes and white socks. And with black on his hat. And I see the water and a chicken flying. And I see a big pole and a rock where the boy's sliding down it. And a bird is flying out of the water. And I see the water with black in it. And I see an airplane with windows in it. And people in it.

High Mental Ability
Experimental Group
Subject No. 170

Picture 1: There's a little baby. I see a mother. There's a little girl and I see a bed. I see cups. I see a chair. I see a coffee, a coffee pot. I see a blanket. I see a dish. The lady is putting on the baby's shoe. The little girl is sitting on the table and another girl is sitting.

Picture 2: I see a man with a horse and it's dark. And I see trees and I see smoke. I see a little rock. I see ground with trees growing. I see the clouds, um, going in. I see it's dark. I see the horse is jumping over this black thing. Se see a little bit of cloud.

Picture 3: I see an airplane. I see the water. I see the boy. I see the hat. I see the hill. I see the birds.

Middle Mental Ability
Experimental Group
Subject No. 100

Picture 1: A lady got a child on her lap. Cup. Another child sitting on a table. Another child over here. A blanket is white. I see a box. I see a washing machine. I see a box.

Picture 2: A man on a horse. He got a gun. A horse is riding him. The horse jump over the hole. I see a tree.

Picture 3: I see an airplane and a boy pointing at it. I see some ducks and water. Boy sittin down.

Middle Mental Ability
Experimental Group
Subject No. 101

Picture 1: It's people. Their mother puttin on the little baby's shoes. And her two sister are sitting down. And they just now woked up.

Picture 2: It's a soldier. And he's riding a horse. And he's going up on a rock.

Picture 3: A boy looking a plane. Showing the ducks the plane, and the birds the plane. And all the ducks are in the water swimming.

Middle Mental Ability
Experimental Group
Subject No. 102

Picture 1: Mother is putting on her little shoes. Mother have some glasses on. Sister is looking at mother.

Picture 2: A man is shooting. The horse is jumping. The sky is dark. It is a hole. The trees is blowing. The fire is going.

Picture 3: The airplace is going. The boy is pointing. The water is going. The duck is going. The duck is walking. The sky is bright.

Middle Mental Ability
Experimental Group
Subject No. 103

Picture 1: The lady's helping them. Those girls.

Picture 2: There's a cowboy riding a horse.

Picture 3: A boy looking at those ducks, There's an airplane up there. The ducks are swimming. I see a boy.

Middle Mental Ability
Experimental Group
Subject No. 104

Picture 1: The mother's putting the little girls shoe on. Another little girl is putting her clothes on. Another little girl is laying down. The little girl is looking at her bed. They have toys in their room. They have boxes. The little girl is waiting for the other two.

Picture 2: The man's on the horse. And the horse is jumping up. The man is looking for something. He's holding a gun. It's dark and the trees are around him. The sky is black. It's dark.

Picture 3: I see a boy pointing at a plane. I see ducks in the water and chickens. There's a big ocean with sand. The little boy is sitting on the sand. And the boy has a hat on.

Middle Mental Ability
Experimental Group
Subject No. 105

Picture 1: The mother is holding the girl. One girl is sitting down. One girl is looking at T.V. And the mother is holding the little girl. She's got the little girl's shoe at her elbow. Her other leg is down. The lady is holding the girl. And the lady got eyeglasses on. And the other girl is sitting on the table.

Picture 2: There's a man riding a black horse. And the man got a stick on his hand. And the horse is standing up. And it's dark. And the trees is black. And the leaves is black. And the man's head is black. And his face is white. And all his clothes is black. And the sky is gray and a little bit white.

Picture 3: It's a airplane up in the sky and it's black and white. And its got seven little black dots on it. There's a lot of ducks. There's a boy pointing to the airplane. And his shoes is white and his pants is white, and his shirt is white. And his arms is white. His hair is black. And his ears is white. And his socks is white.

Middle Mental Ability
Experimental Group
Subject No. 106

Picture 1: They taking the little girl's shoe off.

Picture 2: That man riding a horse.

Picture 3: The boy pointing at an airplane.

Middle Mental Ability
Experimental Group
Subject No. 107

Picture 1: A family. And there's three girls. And the little girl's sitting in the mommy's lap. And the mommy is looking at the children's sneakers. And the big girl in the bed.

Picture 2: A horse and a man on it. Riding. And there's a hole. And the horse is trying to jump over it. And he got a stick in his hand. And the horse can't jump the hole.

Picture 3: A boy looking at an airplane. And the ducks are swimming in the water. And the boy is sitting on the rock. He is pointing at the airplane. Some ducks is swimming and some is walking.

Middle Mental Ability
Experimental Group
Subject No. 108

Picture 1: The lady took the girl's shoe off. One of her girl's is in the bed. The girl is looking at the mother putting the shoe on and one of the girl's is on the table.

Picture: The man is on the horse and the horse if getting ready to jump up over the water. The man got a gun in his hand. A stick I mean. That's all.

Picture 3: The boy pointing to the airplane. And the ducks is in the water. And the boy is laughing. And the ckicken is looking at the boy. And the bird is in the water. And I see a airplane.

Middle Mental Ability
Experimental Group
Subject No. 109

Picture 1: There's a little girl in there. Once upon a time there was a mother and a little girl with her mother. The little girl was looking at her mother put on her shoes. The lady had two other girls and they were sitting on a bed. And the little one was sitting on mother's lap. And mother was putting on her shoes. Behind her she had some toys and she had some dishes at the top. She had cups and bowls behind her.

Picture 2: I don't know no story about that one. A man on the horse. The man's with a stick on the horse. And the horse is jumping over a tree log. Half of his tail is on ground. And the man is pointing his stick at the sky. And a tree is beside the man and the horse. And a bird is in the sky. There is grass on the tree log. There is smoke coming out of something.

Picture 3: I know you drew this one. I see a airplane and I see a boy pointing at the airplane and the boy is sitting on a rock. And he is pointing at the airplane while he is sitting on the pile of sand. And there is eight chickens in the water. And the boy has on a hat. The boy is still and pointing at the airplane. And some of the chickens are looking up at him. And the airplace is up in the sky.

Middle Mental Ability
Experimental Group
Subject No. 110

Picture 1: The lady is putting on her shoe. And her sister is looking at her. And her other sister is looking at something else.

Picture 2: The man is riding his horse and he has something like a stick. It looks like it's a hole in the ground. The horse is black.

Picture 3: The boy is pointing at an airplane. And there's ducks swimming in the water. And the boy is sitting down. The plane is big. It looks like it's a nice day outside.

Middle Mental Ability
Experimental Group
Subject No. 111

Picture 1: A lady putting on a little girl's shoe. This little girl, she's sitting down watching.

Picture 2: A man riding a horse.

Picture 3: A man looking up in the sky and he see a airplane and ducks swimming around in the water.

Middle Mental Ability
Experimental Group
Subject No. 112

Picture 1: I see a girl looking. They are playing.

Picture 2: I see a man on a horse. And a cloud. And trees

Picture 3: I see birds. And ducks and a airplane and a boy.

Middle Mental Ability
Experimental Group
Subject No. 113

Picture 1: A mother holding a little girl. And the other girls. One is in bed. The other girl is little. One is in the bed. And the little girl and the mother is sitting down on the chair.

Picture 2: A horse and a man. And one big tree. Buildings is way back there. And a mountain. Grass. A grave. There look like a little fire. Dirt. A crack is across.

Picture 3: I see a airplane, a boy. And three birds. Five ducks and the water. The hills. The boy wearing a hat and shoes and socks. He's got pants and a belt.

Middle Mental Ability
Experimental Group
Subject No. 114

Picture 1: There's a girl gettin on her shoe. And there's a girl sittin down. And a girl in bed. And a lady sitting down putting on the girl's shoe. There's some cups, bowls. And some sugar, and food. And a trash can, and a box.

Picture 2: It is a pirate. And he got a gun. And a hat. And a pirate's suit. And a horse. And a tree. And a ground with a hole. And a sky.

Picture 3: A boy lookgin at a airplane and some ducks. There's some water.

Middle Mental Ability
Experimental Group
Subject No. 115

Picture 1: Helping the people put their sneaks. And they sitting down.

Picture 2: A cowboy riding on a black stallion.

Picture 3: The boy pointing at an airplane. And I see chickens.

Middle Mental Ability
Experimental Group
Subject No. 116

Picture 1: She hurt her leg. She's putting her shoe on. I forgot.

Picture 2: It's a man shooting a gun.

Picture 3: That's a little boy showing the ducks looking at the airplane.

Middle Mental Ability
Experimental Group
Subject No. 117

Picture 1: A little girl and a mother and a another little girl and a doctor and another little girl. And a little girl is sitting on a bed. The little gril is sitting on the table. I see cups and dishes, peanut butter and a bag. A little girl is sitting on her mother's lap.

Picture 2: A man on a horse. And the name is a gallup. He has a rifle. They are riding through the woods. They are riding away. He is jumping over the ground.

Picture 3: I see a airplane flying through the air on to the airport. The birds and the chickens are singing. The boy on the airplane. He should be cold.

Middle Mental Ability
Experimental Group
Subject No. 118

Picture 1: A lady holding a little girl in her lap. And the other two little girls - one's sitting on one bed and the other is sitting on the other bed. And I can see their toys. And they're pretty. There are cups. And a dish. And they got soap by the box so when they want to wash dishes.

Picture 2: A man riding a horse. And the horse is jumping. And it look like the thing around the horse is silver. And ther's a tree. The sky is a little black. And it got a little bit of gray on the ground.

Picture 3: It's an airplane in the sky. And it's ducks in the water. And there's a boy pointing at the airplane. And there are baby ducks, too. And some are a little black. And some are a little white.

Middle Mental Ability
Experimental Group
Subject No. 119

Picture 1: It's a girl and her mother and two more girls. Her mother is putting on her sneaker. And the othe girl is waking up and she's getting out of bed. And the other girl is in the bed. And the other girl is watching the mother put on the other girl's sneaker.

Picture 2: It's a cowboy and a man riding on a horse. And the horse and the suit is black. They all black. And they out in the dark. Everything is black. And the sky is white.

Picture 3: There's eight birds. And the boy is looking at the airplane. And the eight ducks are flying. Three of them are on the ground and five of them is flying. And the boy is on the hill. The airplane is white.

Middle Mental Ability
Experimental Group
Subject No. 120

Picture 1: The girl sittin on a table with the lady sittin in the girl lap. They patten shoes on and the other one in the bed.

Picture 2: Man sittin on his horse with a gun and a hat and a horsie.

Picture 3: Some chickens and an airplane and birds and a boy sittin on a big rock and pointin at the airplane.

Middle Menatl Ability
Experimental Group
Subject No. 121

Picture 1: It's a mother and a sister and another sister. And the mother holding the other sister. Adn she puttin on her sneakers. And the mother have on a dress. The mother have three childs. And the mother have on a watch.

Picture 2: It's a man. He ridin a horse and he got a mustache. And he have a gun. And got a hat. And he have a suit on. And he got a sword. And the horse got a tail and four feet, legs. And the horse have hair. And the tail is black and the horse got four horse shoes.

Picture 3: It's a boy pointing at the airplane. And it's eight ducks. And the three ducks is on the ground. And the five ducks is on in the water.

Middle Mental Ability
Experimental Group
Subject No. 122

Picture 1: The lady is putting on her baby's shoe. And the girl who is sitting on the bed. She is watching her mother. And her other sister is looking somewhere else. And somebody is stooping over. They have cups, and plates to drink out of and eat out of. And they have forks and spoons to eat and drink out of. And they have bowls to eat their cereal out of. And they can have them bowls to put some ice cream in. And they have a short family.

Picture 2: This is a man riding a horse with a gun in his hand. And his horse is standing on his back feet. And he have on a black suit and a black hat. And he have a black horse. And his horse looks like he is going to fall in a hole. And it is a tree in back of him. And the sky looks like it is gray and white. And the horse is shiny. If that man did not have no saddle on that horse he could have fell off. And the horse tail is black and soft. And the horses wear horse shoes. And the horse is standing on the ground.

Picture 3: This is boy sitting on some sand. I think it's a rock. He sees an airplane in the sky. And he is pointing at it. And there are ducks on the ground standing. Three ducks. And five ducks is in the water. And they are swimming. And the boy has on a hat. And it is made out of straw. He has on pants and a shirt. And he has on socks and shoes.

Middle Mental Ability
Experimental Group
Subject No. 123

Picture 1: There's a girl. There's a mother. There's a girl. And there's another girl. Blankets. A sheet. I see cups. I see a heat. I see another cover. The girl got on sneakers. And the lady got on a skirt. There's a table. The lady is sitting.on a chair. There's a box back there. And the girl got on a dress.

Picture 2: It's a man on a horse. The man got a gun in his hand. The man got on a hat. And that's a hole. And there's trees. See the sky. And see the horse got on shoes. And I see grass. I see houses back there. I see the pavement. And I see a paper with a note on it.

Picture 3: It's a boy. I see a duck. I see birds flying. And I see a airplane. I see water. And I see the boy sitting down on the ground. I see the boy pointing to the airplane. And the boy got on shoes. And the boy got on a shirt. And the boy got on pants. The boy got on a belt.

Middle Mental Ability
Experimental Group
Subject No. 124

Picture 1: A girl and her mother. And the girl is sitting on the mother's lap. The girl is sittin on a bed. The other girl is sittin on a bed.

Picture 2: A man's on a horse. The horse is going.

Picture 3: The boy is pointing. Airplane is going-The little ducks. They in the water.

Middle Mental Ability
Experimental Group
Subject No. 125

Picture 1: A lady holding a baby. Putting on her shoes. The girl sitting on a blanket. The blanket is on the table. The girl on the bed. Somebody's shirt hangin down. There's a box. A Tide box. The girl has a cover on. The lady have a shirt on her knees. The girl sittin on her mother's lap. The girl in bed with her clothes on.

Picture 2: A man on a horsie. A man with a hat on. The man is riding on horsie. He has a knife. He's riding around the trees. He has on his boots. He was riding on the ground. He has his cover with him on the horse. The man is riding on the horse when it's night time. The man have a stick on his hand. The man's going where all the smoke is.

Picture 3: The boy is looking at the airplane. He sees all the windows. The boy have a hat on. The boy has some birds. Eight birds. The boy has two hills. The boy has some water. The boy is pointing at something. The boy has his pants on. The boy has his shirt open. The boy sittin on the hills. The boy has his socks and shoes on.

Low Mental Ability
Experimental Group
Subject No. 126

Picture 1: That's a girl and that's another girl. This woman right here have the baby girl in her lap and she's wearing a bathing suit. She's putting on her shoe.

Picture 2: This is a man who's riding a horse and the horse is riding him. And he's trying to make the horse jump up and the horse jumped up. It was dark that time and he have a stick and he's trying to find a home to live in.

Picture 3: That's a boy. He saw a airplane. And some chicks is on the water. Only three chicks is on the ground. There was a airplane coming and he said "Look up." He saw a airplane.

Low Mental Ability
Experimental Group
Subject No. 127

Picture 1: The little girl is sitting down. A lady have a baby on her lap.

Picture 2: A man riding on a horse.

Picture 3: A airplane is up in the air. Ducks are in the water. The little boy is pointing at the airplane.

Low Mental Ability
Experimental Group
Subject No. 128

Picture 1: The girl don't like school. She didn't want to come. The teacher have to look at her sneaks. These two girls like school. These two girls like to learn. These two girls wish they's grow up. These two girls like their doll babies that talks. And they wish they had sneaks. These girls have pretty clothes. And this girl have pretty shoes. And this girl have a nice room with lots of toys and with bulb lights. And these girls grow up again. These girls wish they had more pretty clothes. They wish they had a radio. They wish they had their own house. And they wish they found a box and made something out of it. They wish they had new sunglasses. They wish they had new shorts.

Picture 2: This man is a great fighter. He's 76. He have a new sword and new clothes for his birthday. And he went out to play with the children to give them a ride. And he seen children poor and they was in the desert, and he ride them home. It was a long way home. He stop and give the kids some water. He said come over his house about 6:00. He'll pick them up. The children wanted to play with him and the man had toys for the children. And the man made a big house with a wooden door and a dining room. Then he want to make the children paint and do nice things and make a truck house. With doll baby in the suit case with toys. He's gonna buy him two new radios.

Picture 3: Here goes the airplane. This airplane came out of the war in seventy-six. And this airplane love to fly over beaches and give a duck a ride. And the parachute man love to jump out of the airplane and in the ocean. And then the airplane landed and the water men come out and go on the beaches. And then there was a boy who said, "Look at the airplane! Look at the airplane! I wish I had a ride." And then the ducks look straight up in the air and flew straight in the airplane where the windows was open. Then the man was in the airplane driving and then the people catch the ducks in the windows and give them to their childrens.

Low Mental Ability
Experimental Group
Subject No. 129

Picture 1: Working. And some mommy's putting on shoes. And some of them are looking. And there's cups. And there's dishes. And there's paper. And it's a table. And is a towel on the table. And is legs on the table.

Picture 2: The man got a gun. He own the horse. Trees. And it's dark. The horse own the trees. Is water on the ground. And is cloudy up there. It is a rat in the water. The horse is jumping. The horse are running and the man turning around and man have a mustache.

Picture 3: It's a boy pointing. The boy are pointing at the chickens. The airplane coming down. The water is getting bigger. The ducks are playing with each other. And the boy are sliding down. And the boy is have on a clean shirt. And the boy got clean in the bath tub. And the chickens are in the water. And they rock in the water. The peoples in the airplane. And the black water are pushing the chickens. And the other black water are coming down.

Low Mental Ability
Experimental Group
Subject No. 130

Picture 1: The mother put on the baby's shoe and a little girl is sitting on the table. And another girl turn her head another way. Dishes on the mantle. And a box on the table. And a blanket on the bed.

Picture 2: A man on a horse with a gun in his hand. The horse kick his feet up and that all I know.

Picture 3: A boy is pointing at a airplane. Little baby chickens. Little ducks in the water. A plane is flying up in the air. And sand on the ground.

Low Mental Ability
Experimental Group
Subject No. 131

Picture 1: They putting on a girl's shoes.

Picture 2: The man on a horse.

Picture 3: The boy on a mountain looking at the sky and the airplane.

Low Mental Ability
Experimental Group
Subject No. 132

Picture 1: That there little girl with his big sister at home and she have little sister on lap and mother washing clothes and the other taking shoe off and she in the washing machine- washing the clothes.

Picture 2: That is a pirate with a horse-gotta thing- a rifle and has a horse and the dark woods and the horse is going to jump over the hill-and the horse is hard to see-is dark.

Picture 3: The little boys up on a hill and a plane up on the sky and the little boys pointin out two ducks, three chickens and four ducks and four chickens.

Low Mental Ability
Experimental Group
Subject No. 133

Picture 1: People putting on their clothes. They're going to school. She going to work.

Picture 2: It's a man on a horse. He going home. He going home to go to sleep. He wearing a suit, a black suit. And there's trees. It's getting ready to rain.

Picture 3: It's chickens and ducks and a boy. And a airplane. He's looking at a airplane, pointing at it. He's sitting donw. He got a hat, white. And his pants is white. And the ducks and the airplane white. Everything is white. Some ducks is walking.

Low Mental Ability
Experimental Group
Subject No. 134

Picture 1: The lady is putting on the girl's shoe and this girl is waiting to go outside. And this girl is staring. This other girl tries to make a tent and it didn't come up, and when she looked at it she said somebody fixed it up, and the mother is putting on the little girl' shoe so she can go outside and swim cause she got on her bathing suit. The other girl is staring so she can go outside and have fun with her other sister. The mother thinks she doesn't have on the right shoes. She thinks she has a mix-match shoes. And the mother say she can go outside and have fun so she put her shoe on.

Picture 2: The man went for the enemies attact so he could fight. And his men have knives, swords, and bone arrows. They waiting for the men to attack. They kill the bad guys that took their womans. They's why they attack them. They get their woman's back. And one of the bad guys got shot off his horse by a bow and arrow. And so one good gut got shot off the mountain and then a bad guy tried to jump on another guy and the good guy throwed a knife in the other guy's back. And the other bad gusy jumped on the good guy's back and he stabbed the bad guy. And the good guys won the war and the bad guy's said they would attack again. The bad guys said they want to win the war.

Picture 3: This is a boy looking at a airplane up in the sky. The ducks are looking at the goy to see what he is going. The duck's in the water swimming around and the other bird is getting ready to take off. The other bird went in the water to get some fish. So a shark came over and bit the duck's feet off. The duck flied off. And the duck went home to his mother and said he won't go to the water anymore until the shark went away to see his friend the boy. The other bird he flied off and on the airplane. His father said to come off the plane or he's fly up and get him. And the father came up and told the little bird he go to bed without no supper and the bird say "I'm sorry". The pop say " No sorry, no breakfast for you".

Low Mental Ability
Experimental Group
Subject No. 135

Picture 1: Putting on a little girls sneaker.

Picture 2: That is a man on a horse.

Picture 3: It is a airplane flying. And that is two birds. And a little boy pointing.

Low Mental Ability
Experimental Group
Subject No. 136

Picture 1: The mother is putting sneaks on. And the girl's look at the mother. The girl has sneaks on. And the girl looks at the doctor.

Picture 2: The man on a horse. Then the horse jump. The man looking at the horse. I see the man play.

Picture 3: The boy see a airplane. And a duck look at the boy. The duck are swimming. And the duck trying to fly.

Low Mental Ability
Experimental Group
Subject No. 138

Picture 1: A little girl. And a mother. And another little girl. And another girl.

Picture 2: It's a horse, and a man on top, and a tree.

Picture 3: A airplane. A boy. Duck. Chickens.

Low Mental Ability
Experimental Group
Subject No. 139

Picture 1: Sitting down I see a girl, a lady. See a girl. A girl.

Picture 2: A horse and a man.

Picture 3: Airplanes, Birds, Chickens. And a boy.

Low Mental Ability
Experimental Group
Subject No. 140

Picture 1: It is a little girl and a lady holdin a girl and another little girl. She's in bed and the lady puttin her sneaks on and she gettin ready for school.

Picture 2: It has a man ridin a horse and the horse had one of things that you put on him and its night time.

Picture 3: Here is a big boy and four little chicks and one little- two little lambs. I don't know what this is - two little chicks and one little bunny.

Low Mental Ability
Experimental Group
Subject No. 141

Picture 1: This picture is about a lady have three little childrens and she's putting on the baby of the family's shoes and she's looking at what she's doing. She has dishes up on the shelf for the little children. They are play dishes. There are four dishes. It has a house in the back of the lady. It has a rabbit over there on the barrel.

Picture 2: This is a man with a horse riding it and he have a stick behind him. And he have black gloves and the horse is black and the saddle is gold and black. It looks shiney. He has black ears. There is a tree almost near the men with leaves on it.

Picture 3: There is a plane flying in the air. There are some ducks swimming in the pond. There are some ducks on the land. There is a little boy pointing at the plane and the little boy is laughing.

Low Mental Ability
Experimental Group
Subject No. 142

Picture 1: The little girl got hurt over there on her leg. That girl her leg got hurt. She got hurt too.

Picture 2: Indian. He riding on a horse.

Picture 3: Birds. And a boy looking at them. And a airplane. Butterflies.

Low Mental Ability
Experimental Group
Subject No. 143

Picture 1: I see a baby and a girl and a mother and another little girl. Two little girls in bed and the mother got the baby.

Picture 2: I see a horsie and a man. The ridin a horse.

Picture 3: I see a airplane, ducks, chicken and a little boy. The ducks on the water and the chicken on the thing and the little boy sittin up on a rock.

Low Mental Ability
Experimental Group
Subject No. 144

Picture 1: Putting on a sneaker. Her mother gotta put on her sneaker. The girl in bed is waking up. The other girl is waking up. And her looking at her mother. The cup's on the table. The washing machine is funny. The curtain is hanging up. And the cover on that girl.

Picture 2: A man on a horse with a gun. The horse riding the man. And the man got a stick. The norse standing up. They riding outside in the dark. The tree standing up. And the clouds and air. That's all.

Picture 3: The airplane riding in the air. The bird flying. Ducks qualking and the water. Chick-chicks standing up. There are three. The boy on the ground. That boy funny. The boy got a hat on. That boy say, "Look at the airplane."

Low Mental Ability
Experimental Group
Subject No. 145

Picture 1: Pulling their shoe off. She's pulling a sock off. She have a sun suit on. She have a ribbon in her hair. She's sitting on the table. The girl is sitting on the bed. The lady have glasses on.

Picture 2: The man is on the horse. The horse is on the ground. There's trees out there.

Picture 3: The man is sitting on the ground. The man is looking at the plane. The birds are swimming in the water. The other birds are standing out of the water. The boy have a hat on. The birds are standing in the dirt.

Low Mental Ability
Experimental Group
Subject No. 146

Picture 1: The little boy in the wagon. One truck.

Picture 2: There is one man on a horse.

Picture 3: One boy is pointing.

APPENDIX C

Philadelphia Reading Test
Philadelphia Test in Arithmetic

PHILADELPHIA READING TEST

FORM A

NUMBER RIGHT

PART 1 ....________

PART 2 ....________

PART 3 ....________

PART 4 ....________

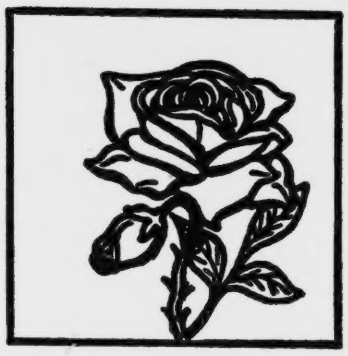
TOTAL ....________

TOTAL RIGHT	STANDARD SCORE (CHECK)
41-45	8
36-40	7
30-35	6
24-29	5
19-23	4
14-18	3
9-13	2
0-8	1

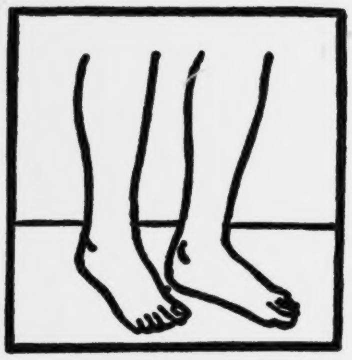
NAME ....

SCHOOL .... DATE ....

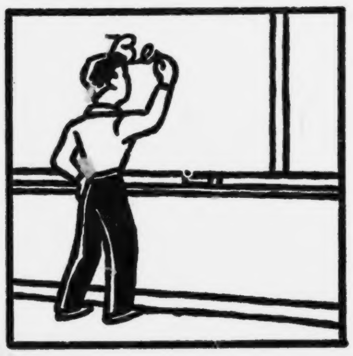
PRACTICE EXERCISES—Part 1



nose
[✓ rose]
rope

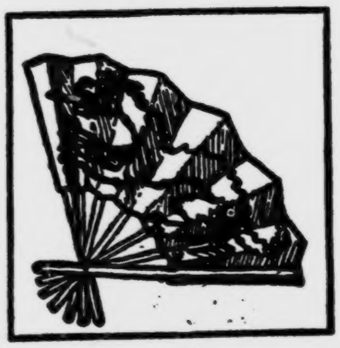


feet
feel
fell

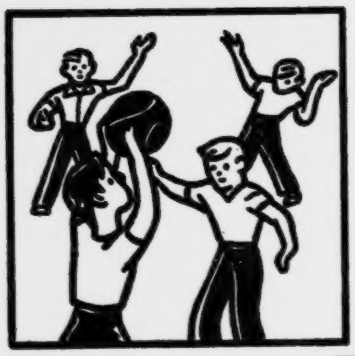


a girl running
a teacher writing
a boy writing

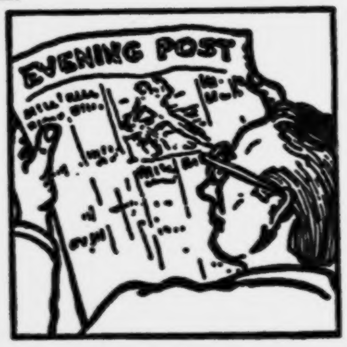
PRACTICE EXERCISES—Part 2



[✓ This is Mother's fan.]
See the pretty farm.
There is a fat baby.



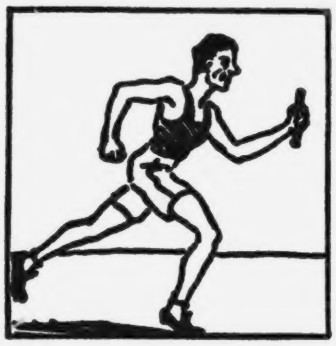
It is raining.
The dog runs fast.
The boys are playing.



The girl is reading.
Father reads the paper.
There is a big book.

FORM R 333—READING TEST, FORM A (1)—SCHOOL DISTRICT OF PHILADELPHIA (JUNE 1962)

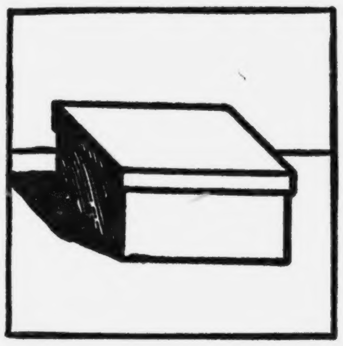
Part 1



sun

rain

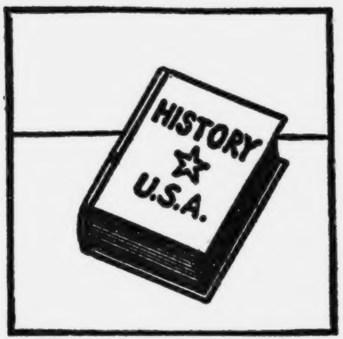
run



bowl

bow

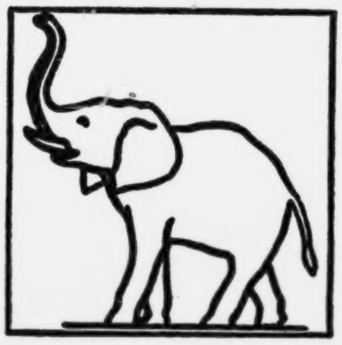
box



door

book

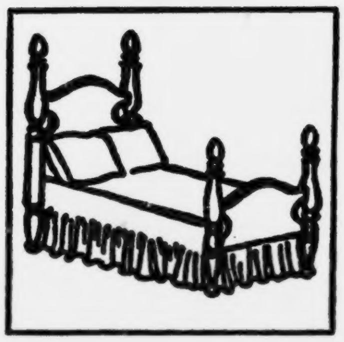
boot



elephant

every

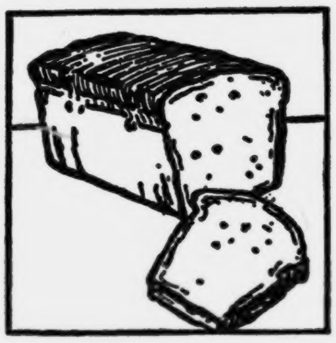
early



bath

bed

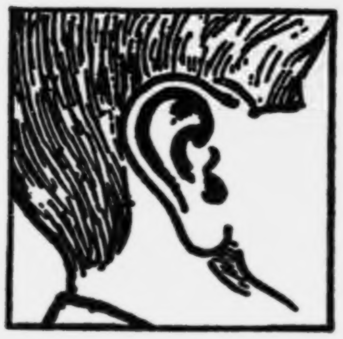
bear



bread

read

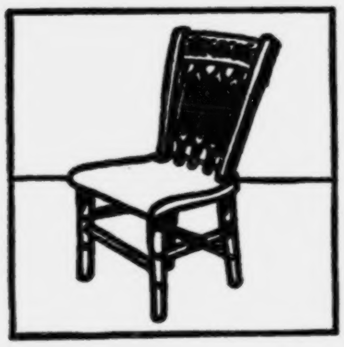
dread



ear

eat

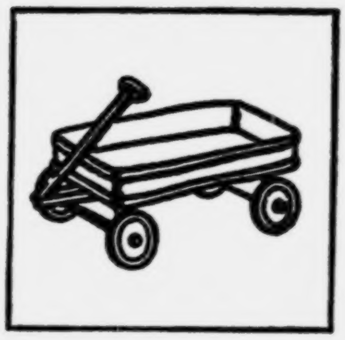
car



care

clean

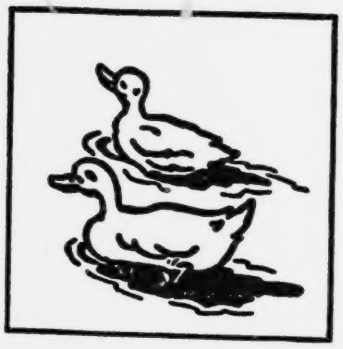
chair



way

wagon

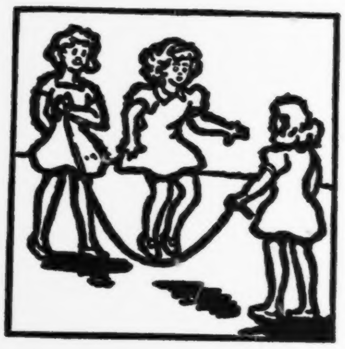
magic



ducks in water

two big drums

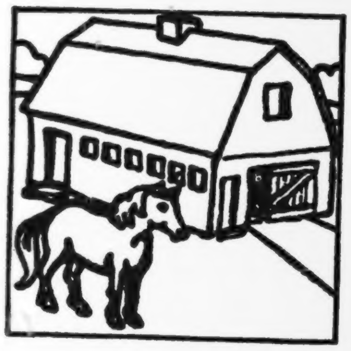
the way to draw



the long road

jumping rope

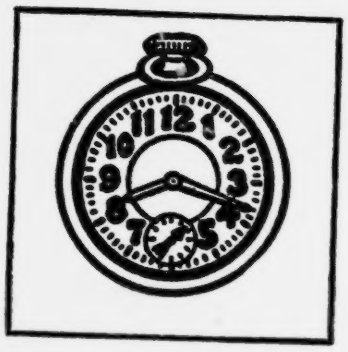
rocking baby



a farmer's barn

bark from a tree

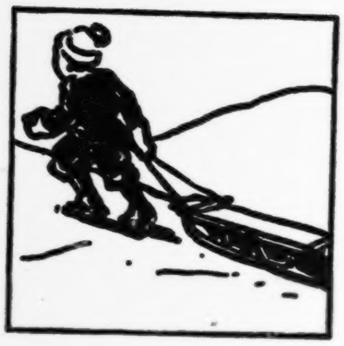
bread and butter



walk with father

water to drink

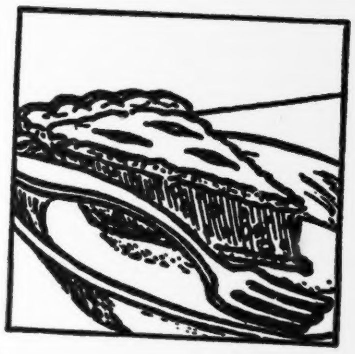
father's watch



pulling a sled

a small ship

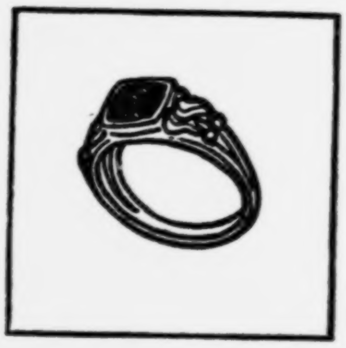
carrying a stick



pie on a plate

fork and spoon

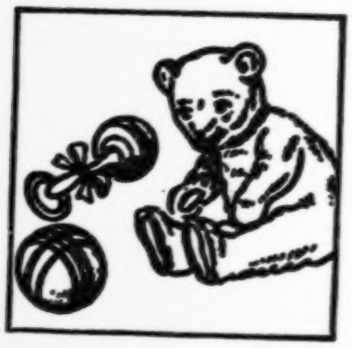
a round pie



ring the bell

a pretty ring

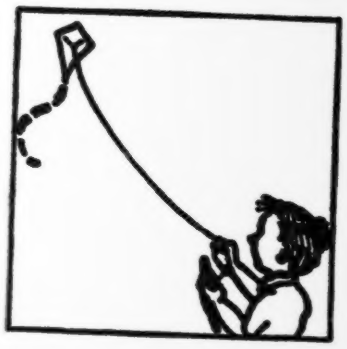
some ribbon



pretty top

baby's toys

a big town



kittens playing

the kind friend

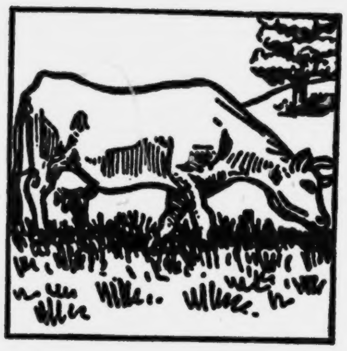
flying a kite

STOP

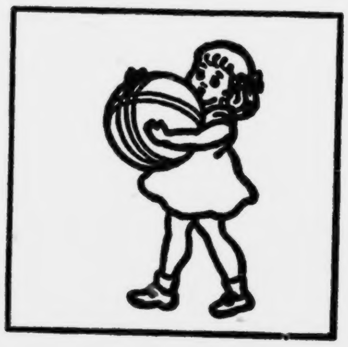
PART 1—(18 ITEMS)

NUMBER RIGHT.................. ______

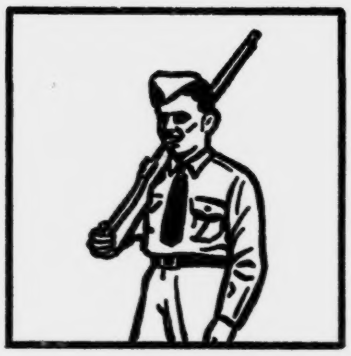
Part 2



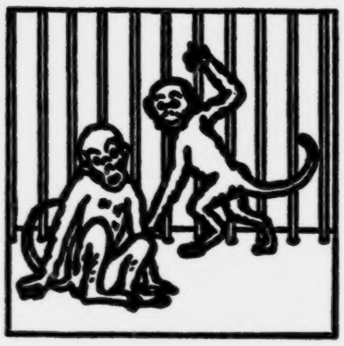
The cow is eating grass.
The farmer milks his cow.
The corn grows tall.



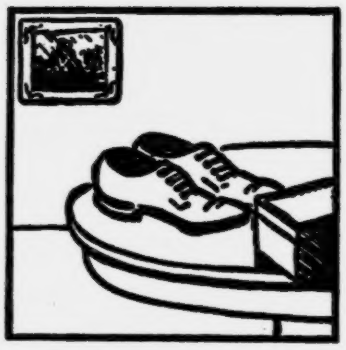
A girl and boy are playing.
Her ball fell to the floor.
The little girl has a big ball.



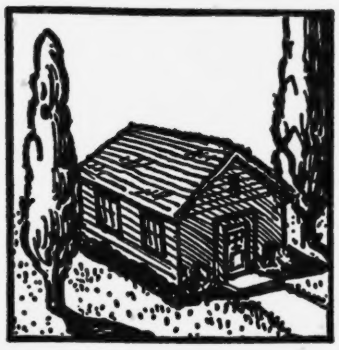
The soldier has a gun.
See the soldier shoot his gun.
The big gun is on the hill.



The man has some money.
There are some monkeys in the trees.
The monkeys live at the zoo.



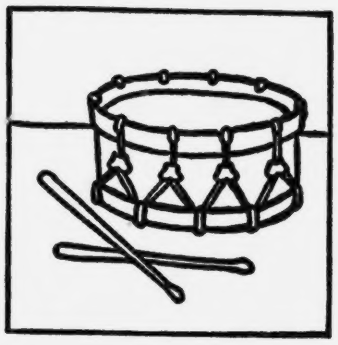
Tom has on a new pair of shoes.
A pair of shoes is on the table.
The shoes are in the box.



There is a cow under the trees.

Two trees are growing by the house.

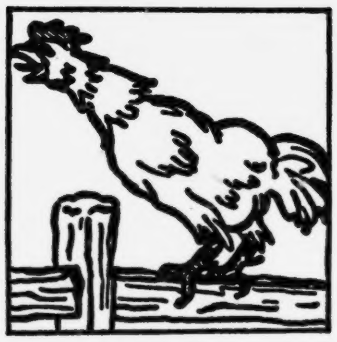
The house has no trees near it.



Brother beats his drum.

Hit the duck with the stick.

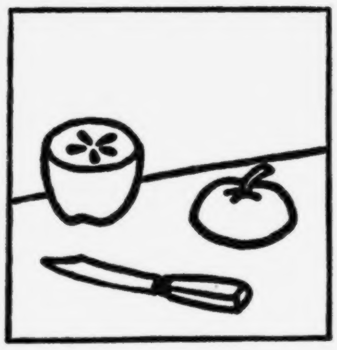
Two sticks are near the drum.



The chickens stand by the fence.

The dog barks at the rooster.

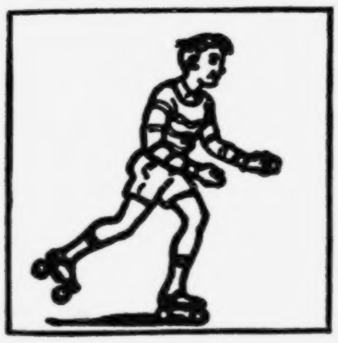
Hear the rooster crowing.



The knife is in the apple.

The apple has five seeds.

There are three apples.



The boys are skating on the ice.

Shake the salt out of the box.

My brother likes to skate.

STOP

PART 2—(10 ITEMS)

NUMBER RIGHT ....

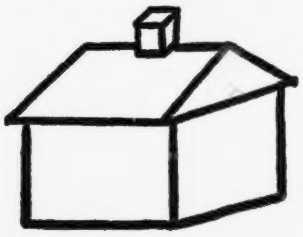
PRACTICE EXERCISES—Part 3

a. Write the letter A.

b. Draw a line under the first word.
doll ball top

c. Put an X on the name of a day.
December Monday May

Part 3



1. Put a window in this house.

2. Put an X in the box on the left.
☐ ☐ ☐

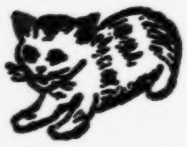
3. Draw a line under the word that tells what you are.
man mother child

4. Put a "b" after the boy's name.
Mary John Jane

5. Put an X on the word that has five letters in it.
black red blue

6. Draw two lines under the shortest word.
sew stocking spring

7. Draw a tail on the cat.



8. Draw a box around what we wear.
coat meat game

STOP

PART 3—(8 ITEMS)

NUMBER RIGHT .... ________

PRACTICE EXERCISES—Part 4

I am good to drink.
I am white.

a. I am
bread milk water

b. I am the color of
snow sky water

I look like a small horse.
Children like to ride on me
I am Bob's pet.

c. I am a
pony dog cow

d. I belong to
Father a boy a girl

Part 4

"Ring-a-ling," rang the telephone.
Spot began to bark.
"Stop barking, Spot," said Alice.
"I won't be able to hear over the telephone."

1. Spot is Alice's
pony cat dog

2. Alice wanted Spot to
be quiet stand still go to the telephone

3. Spot was too
rough noisy big

Mary and Jane are six years old.
Alice is seven years old.
Billy is only four.

4. Mary is older than

   Jane Alice Billy

5. Jane is younger than

   Mary Alice Billy

6. The youngest child is

   Billy Jane Alice

Tommy is a little boy.
He likes to play tag with his two big brothers.
When Tommy is "it" his brothers do not run very fast.
Then Tommy can tag one of them.

7. Tommy cannot run fast because he is

   sick small playing

8. How many boys play tag together?

   two three four

9. Tommy can tag his brothers when they

   run fast hide run slowly

PART 4—(9 ITEMS)

NUMBER RIGHT.................. ________

PHILADELPHIA TEST IN ARITHMETIC—FORM A
GRADE 1

NAME

SCORE SUMMARY

TEST 1..............................

TEST 2..............................

TOTAL NUMBER RIGHT..............................

TOTAL RIGHT	STANDARD SCORE (CHECK)
72	7
70–71	6
66–69	5
45–65	4
23–44	3
7–22	2
0–6	1

TEST 1—ADD

RIGHTS..............................

$\begin{array}{r}5\\\underline{1}\end{array}$	$\begin{array}{r}1\\\underline{1}\end{array}$	$\begin{array}{r}4\\\underline{2}\end{array}$	$\begin{array}{r}2\\\underline{1}\end{array}$	$\begin{array}{r}3\\\underline{3}\end{array}$	$\begin{array}{r}4\\\underline{3}\end{array}$
$\begin{array}{r}3\\\underline{2}\end{array}$	$\begin{array}{r}1\\\underline{6}\end{array}$	$\begin{array}{r}3\\\underline{1}\end{array}$	$\begin{array}{r}6\\\underline{2}\end{array}$	$\begin{array}{r}1\\\underline{4}\end{array}$	$\begin{array}{r}7\\\underline{2}\end{array}$
$\begin{array}{r}6\\\underline{1}\end{array}$	$\begin{array}{r}2\\\underline{3}\end{array}$	$\begin{array}{r}3\\\underline{5}\end{array}$	$\begin{array}{r}4\\\underline{1}\end{array}$	$\begin{array}{r}5\\\underline{2}\end{array}$	$\begin{array}{r}1\\\underline{5}\end{array}$
$\begin{array}{r}2\\\underline{2}\end{array}$	$\begin{array}{r}7\\\underline{1}\end{array}$	$\begin{array}{r}1\\\underline{2}\end{array}$	$\begin{array}{r}3\\\underline{6}\end{array}$	$\begin{array}{r}1\\\underline{3}\end{array}$	$\begin{array}{r}1\\\underline{8}\end{array}$
$\begin{array}{r}5\\\underline{3}\end{array}$	$\begin{array}{r}2\\\underline{4}\end{array}$	$\begin{array}{r}2\\\underline{6}\end{array}$	$\begin{array}{r}4\\\underline{4}\end{array}$	$\begin{array}{r}2\\\underline{7}\end{array}$	$\begin{array}{r}8\\\underline{1}\end{array}$
$\begin{array}{r}6\\\underline{3}\end{array}$	$\begin{array}{r}3\\\underline{4}\end{array}$	$\begin{array}{r}5\\\underline{4}\end{array}$	$\begin{array}{r}2\\\underline{5}\end{array}$	$\begin{array}{r}1\\\underline{7}\end{array}$	$\begin{array}{r}4\\\underline{5}\end{array}$

TEST 2—SUBTRACT

RIGHTS..........

5 -3	6 -2	4 -3	9 -2	7 -5	7 -1
8 -6	9 -4	7 -2	9 -3	8 -5	9 -6
6 -3	7 -4	9 -5	8 -4	6 -4	7 -3
6 -1	3 -2	7 -6	2 -1	8 -2	5 -4
9 -7	3 -1	8 -1	4 -2	9 -8	5 -2
6 -5	4 -1	8 -3	8 -7	5 -1	9 -1